

HOT-ROD BUYER'S GUIDE



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June 1988

47380

Radio Control CAR ACTION

THE R/C CAR MAGAZINE

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**LIGHTNING
PORSCHE 956**



**How To:
AIRBRUSHING FLAMES**

**HI-TECH
TOYOTA RALLY**

**Kyosho's 1/8
NITRO BURNS**



**WILD ULTIMA/
Sprint Conversion**

**Refurbish Your
Tired Iron-**



PROJECT FX 10



0 71896 47380 3



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COVER: This Hot-Rod issue was designed to blow your doors off!

TOP: BoLink's sprint-car conversion. Which car is it for?—the world champ Ultima... smart choice. Background shot of crowd at ROAR 1/10-scale Off-road Winter Championships. Top left is the Tamiya 1/12-scale Porsche 956 carpet contender. Both photos by Rich Hemstreet.

MIDDLE: A flaming '57 Chevy waiting to do battle on the strip! Photo by Steve Pond.

BOTTOM: Futaba's new FX 10, modified with all sorts of after-market components to make it a lightweight asphalt- or dirt-oval machine. Photo by Steve Pond.

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Here I am, way back in 1971 at age 15, with my first hot-rod—a classic '57 Chevy. I bought the car for \$125 and later installed a 427 big-block engine—car was a screamer!

EDITORIAL

by LOUIS V. DeFRANCESCO JR.

WHEN A rebellious teenager back in the late '40s decided he would rip the fenders off his '32 Ford coupe and modify the engine so it would go faster, the hot-rod was born and so was America's infatuation with this type of car. Very few of the automobile types that have rolled off of Detroit's assembly line have escaped the hands of some over-zealous young hot-rod enthusiast. If it had four wheels and a V-8, it was game. Cars like the '32 Deuce coupe, '40 Willys, '57 Chevy, '63 'Vette, '65 Shelby Mustang, '66 Chevelle SS, '69 GTO Judge, Hemi Cuda and countless others have become legendary, and are still being modified and sought after by enthusiasts everywhere.

In the early '70s, when hot-rodding had reached its zenith, I spent many hours working on my own array of street machines. These included a big-block-powered '57 Chevy, a '40 Ford coupe and a '70 Plymouth Superbird. Back then, muscle-car parts were cheap, and a lot of what you needed

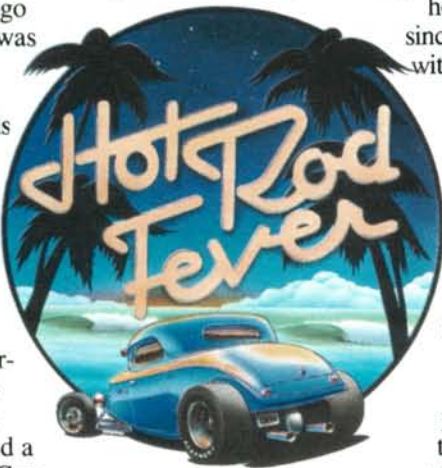
you could fabricate by visiting the local junkyard. Today, a trip to a used-car lot (if you can even find that classic anymore) or the local speed shop will tell you that the deals of the

hot-rod era have long since disappeared along with the 35-cent gallon of high-test.

Don't despair; the muscle-car era still lives vicariously through the radio-control hobby, and you can still build that killer street machine in 1/10-scale if you want. It's easy, and you probably have a tired off-roader lying around that will easily convert to a street rod.

There's quite a selection of Lexan bodies, wheels, street tires, motors and body-mount kits that will get your tired iron into street trim, pronto.

Some manufacturers are even now making hot-rod kits. As for finishing, the sky is the limit when it comes to paint schemes and colors, and you should check out Phil Sroka's "Airbrushing Flames" article in this issue, so you can blow everyone's mind at the drive-in next Saturday night! Keep sending us your input, and remember, street is neat! ■



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Letters



Info Pick-up

I'd like an unbiased opinion. I'm interested in buying an R/C pickup and have been looking at the Tamiya Bruiser and the Clod Buster. I'd like a comparison of the two, and I'd appreciate any information you could give me on the two trucks. Your magazine is very helpful, especially the "Clod Buster" article.

JOHN MILAKOVICH
West Allis, WI

John, look no further. In our May issue of RCCA there's a "Monster Truck Shoot-out" that contains most of the information you're looking for. There's a chart of the tests we performed, and this includes each truck's score for each event, so you can compare the scores and determine which truck is best for you.

SP

Sanyo Rechargeables

I'd like to commend you all on a great mag, but it has one fault: Bi-monthly is too long to wait for a new issue. How about monthly?!

In your review of the Clod Buster (April issue), you used a 6-cell pack using Sanyo D-cell rechargeables with a capacity of 4,000mAh to extend the running time. Are these batteries sold at hobby shops? Are they sold in different sizes for different cars, and if so, where can I buy them?

ERIC FLOWERS
Detroit, MI

Eric, you're right; two months is too long to wait for our magazine. However, if you were looking at the April issue of RCCA, you had our third monthly issue in your hand. Wake up! To answer your question about the batteries: The D-cell packs should be available through most hobby shops, or you can contact Aerotrend (31 Nichols St., Ansonia, CT 06401), which sells the assembled packs. If I understand

you correctly, you wanted to know if these batteries are available for different cars. You obviously didn't see the size of these batteries; they're far too big for a car, so it's best to leave these monster cells for the trucks.

SP

Ultima Upset

As I read your article on the Ultima/RC 10 shootout, I noticed some unfairness: The RC 10 has after-market front tires. You didn't really expect the Ultima to win with stock tires, did you?

As a concerned Ultima owner, I demand a rematch! Later dudes!

"HAPPENIN'" HARLEY WONG
Onaway, MI

Harley, the stock Ultima tires were used on Joel Johnson's World Championship car. What makes you think that they were such a disadvantage for the Ultima in our shootout? As for the "after-market" front tires on the RC 10, they're designed for the same type of terrain as the stock Kyosho front tires are, so your claim that this was a disadvantage is totally unfounded. You must be the type who cries "Foul" if your friend beats you in a foot race and he's wearing different sneakers! As an Ultima owner, you should have more faith in your Ultima. A few extra laps around the track and some minor suspension adjustments, and any experienced driver should be able to overcome the imaginary disadvantage of using stock tires. Get serious! Later dude!

SP

Hornet Hound

The front A-arms on my Hornet are worn out. Where can I get a pair of A-arms and front stabilizers like those on the Varicom Manx? I'd like to see a performance article showing how to make our Hornets go faster and handle better.

(Continued on page 10)



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Letters

(Continued from page 8)

How do you get such awesome paint jobs on your test cars?

BRAIDY CHRISTIANSON
Fertile, MN

Braidy, the A-arms on the Mugen Manx are also made for the Hornet by You-G, and they're available through Andes Hobbies. The "stabilizers" you refer to are actually upper control arms for the front end. These allow the suspension to compress without changes in the camber and with less violent changes in the alignment. Refer to Fred Murphy's "Project Grasshopper" (Winter and February '87 issues) to spice up the Hornet. Although the article is about the Grasshopper, the chassis of the Hornet is identical, so these parts are interchangeable.

Regarding the "awesome" paint jobs, Phil Sroka's articles show how to do it. See "Airbrushing Flames" in this issue. Read and reap! SP

Math Mix-up?

In reference to your response concerning RC 10 gear ratios (March '88 issue): I agree in principle, but I can't arrive at your final drive ratios. My calculations yield the following: 19/44, with 1.83 diff, is 4.23:1; 14/54, with 1.83 diff, is 7.06:1; and 15/54, with 1.83 diff, is 6.59:1. I think one must multiply, not add, the two ratios. Am I missing something?

MIKE D. HOLLINGSWORTH
Tuscaloosa, AL

Mike, we stand corrected. It's true that you multiply to combine two ratios. I don't think you're missing anything, although I may have missed the math class when they taught how to calculate gear ratios! Thank you for keeping me honest. SP

Mph Misunderstanding?

I noticed that the stated mph in the "Advance Funny Car" article (March '88 issue) is wrong. To find mph, you divide distance by time. If you do this, 132 divided by 3.66 equals 36.065mph. How did you get 24.59mph? The other

figures were incorrect, too. I think you should explain this to everyone.

BRETT SISKSNIOUS
Berkeley Heights, NJ

Brett, while the speed calculations for the Advance Funny Car are an average speed for the entire distance and aren't representative of the maximum possible speed, our calculations are correct. You stated that in order to obtain an mph figure, you must divide the distance by the elapsed time. This is correct, as long as the distance is in fractions of a mile, and the time is in fractions of an hour. You say that 24.59mph is incorrect, because when you divided the distance of 132 feet by the time of 3.66 seconds, your result was 36.065mph. Your mistake is that the distance was measured in feet and the elapsed time was measured in seconds. The result of your equation is correct for feet per second rather than for miles per hour. To obtain a mile per hour figure, you must convert the data to miles and hours. If the distance is 132 feet, you must divide 132 by 5,280 (5,280 is the number of feet in a mile), arriving at .025 mile. To calculate a time in hours, you must divide 3.66 seconds by 3,600 (the number of seconds in an hour). The result is .0010166. When you divide the .025 mile by .0010166, the result is 24.59mph. SP

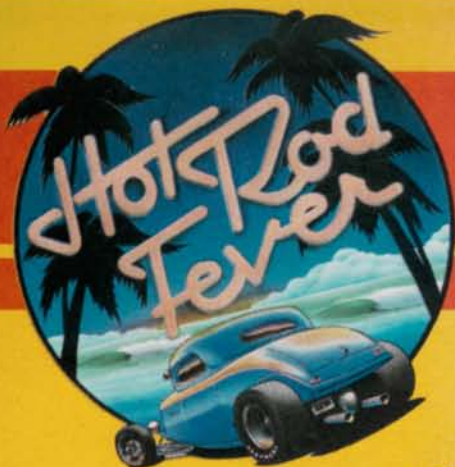
Lexan Body

Who makes the Lexan body found on the Ultima ("RC 10 vs. Ultima Shootout," April '88 issue)? How much does it cost? How can I order it?

CARL SICARD
South Burlington, VT

Carl, the body used on the Ultima for the "RC 10 vs. Ultima Shootout" is the stock Kyosho Optima body modified to fit the Ultima. You can order this body through your local hobby shop or through Tower Hobbies. SP

We welcome your comments, and suggestions. Letters should be addressed to "Letters," Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897. Letters may be edited for clarity and length. We regret that due to the tremendous amount of letters we receive we cannot respond to every one.



PUT THE **HOT** IN YOUR ROD
WITH SOME FLAMES

AIR BRUSHING FLAMES



by PHIL SROKA

AUTOENTHUSIASTS have always been obsessed with producing their own versions of their favorite rides, like the legendary '57 Chevy. Going to car shows and thumbing through magazines reveals endless variations of this classic coupe. The most memorable and striking version is with flames. Painstakingly applied, flames can be a real eye-catcher.

Starting with your favorite 1/10-scale body already trimmed and mounted, begin the procedure by taping

the windows. 3M Fine Line tape will give the best lines. After the windows are taped, tape the lights and details. Apply Parma's Spray Mask to the area that is to be flames. (Don't try to use *tape* for this!)

For the best results, let the mask dry for about 12 hours. Once dry, the mask can be drawn on, providing a guide for the flames. (Magazine photos of full-scale cars can provide examples that you may want to duplicate.)

Using a new X-Acto knife, follow the lines drawn previously. When you're finished doing this, remove

the outer portion of the spray mask. The main colors can now be applied.

After applying sufficient coats of the chosen color, remove the spray-mask portion of the flames.

I used three colors. First, I applied two coats of red. Adding too much paint at this time can cause overspray, which ruins the border between the colors.

Next, I sprayed the orange. While spraying this color, aim toward the previous color, again to avoid overspray. White was then applied over the entire flame area; this brightens the colors. The tape was removed for the trim, which was sprayed in silver. The rear fin area was shaded with black to give depth.

With only windows remaining, the tape was removed and a light spray of black was applied to create a tinted look.

Flames can be applied in an array of colors with dramatic results. I used a traditional color scheme.



1. All the ingredients for a flame job: Parma spray mask, paint, tape and thinner.



2. After taping windows, apply a coat of spray mask. Allow to dry for 12 hours.



3. Using a soft pencil or fine marker, draw flames on surface of mask.



4. Using a sharp No. 11 hobby blade, cut carefully along marked lines and remove film from non-flame area.



5. Spray main body in choice of color.



6. Remove the masking film from flame area. This is what your body should look like so far.



7. Start applying color to flame area. In this case, two colors (red and yellow) are used. Either may be applied first.



8. Second color being applied here. Entire area then oversprayed with white to brighten colors.

As always, remember, practice makes perfect.
Good luck, and happy spraying!



The Inside Scoop

by CHRIS CHIANELLI

THE R/C CAR industry is rapidly advancing, with new products being offered at a head-spinning rate. So, I'll make manufacturers nervous, but feed you R/C squirrels who are hungry for info, by bringing you a special report on security leaks and "late-in" items. Here goes!



King "Ura" (the Ayatollah of Radio Controlla's head hatchet-man) followed Chianelli everywhere to ensure that orders were carried out!

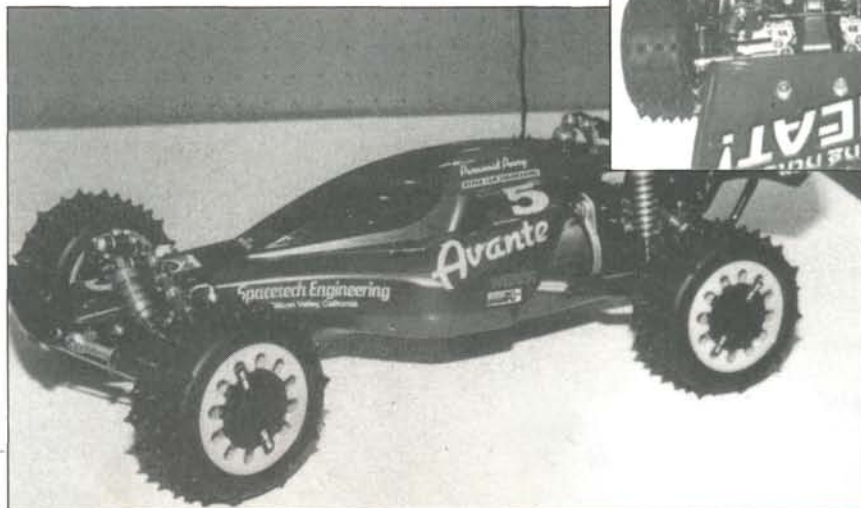
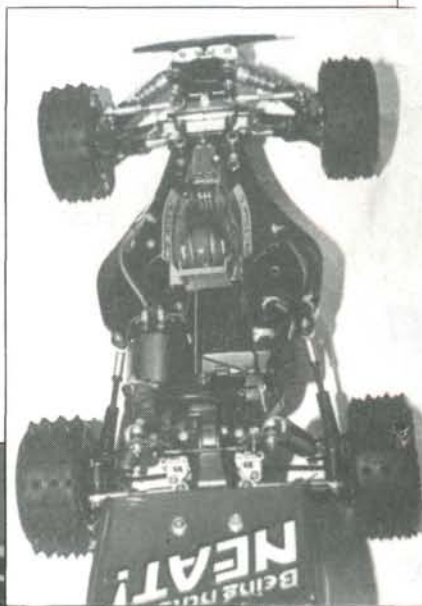
NÜRNBERG

SPECIAL REPORT

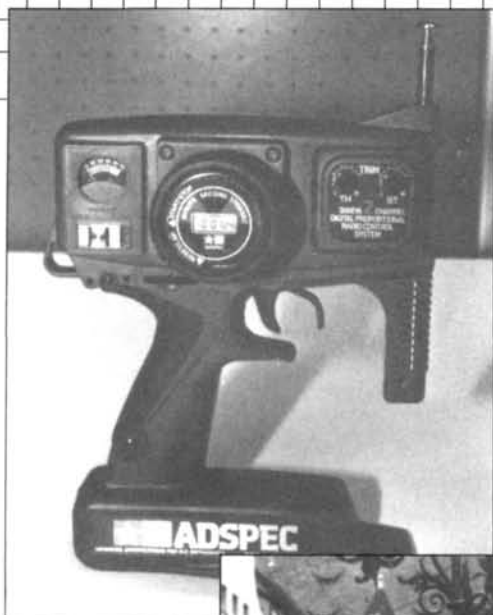
ONCE AGAIN, the Ayatollah of Radio Controlla has commanded me to do his bidding: "I don't care if you must swim, but cross the Atlantic you will!" he bellowed, as sparks flew from his head. (This phenomenon often occurs when he over-marinates his Ni-Cds in caffeine!) Where did he want me to go?—The Nuremberg Show, in West Germany, which is the granddaddy of all hobby shows. Every nationality is represented there! He continued, "This spy mission will be a success. Come back with all the info, or I'll make sure that you take up permanent residence on a chicken farm in East Germany!"

Well, it looks like my corn-tossing career is at least postponed, 'cause here's what's happening! By the way, old Nuremberg is beautiful, and so are the girls.

This top view of the Avante shows adjustable trailing links, metal heim-joints and off-set, in-line motor. Not visible are front and rear sway-bars. Looks like nothing less than state-of-the-art. We can't wait!



Above: His Eminence, Mr. Tamiya, proudly holds a prototype $1/12$ -scale Ferrari F40. When I asked Mr. Tamiya if I could take a picture of him, he responded by saying, "Only if I can take a picture of you!" With the help of Mr. Voss, the American advisor to Tamiya, we talked about many things. Mr. Voss, however, seemed most enthusiastic about the car you see to the right: the no-holds-barred 4WD shaft-drive Avante—an astounding departure for Tamiya.



Here's a closer look at the new Tamiya ADSPEC radio with timer in wheel that times to the nearest tenth of a second. Note "foot" molded in so radio doesn't fall over easily.



Above: The new Marui Shogun is based on familiar Ninja-style chassis.

Left: I told you the girls were hot, and so is this new JR long-stroke 3.5! (The smiling girl is Sabina.) A long-stroke will give a broader torque band and more usable, less peaky low-end power coming out of turns. Available in the very near future from Hobby Lobby International.



Fearing the thud of King Ura's icy hatchet, to ensure a successful mission, our editor turns the "Brass Ring of Good Luck" in old Nuremberg's town square. If you're ever there, try it—it seems to have worked for Chris!



Ken McDowell (Mr. Parma) would need 12 more arms to hold the new projects he's working on. Here he's holding his new $1/10$ -scale funny car and his electric boat, the SKI Tiger, featuring a surface drive (far superior to under-water drive). Parma made a strong showing at Nuremberg.



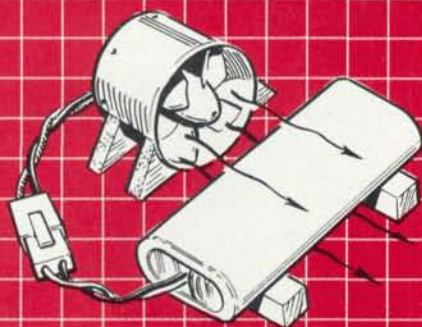
Thunder Tiger is now in the $1/10$ -scale Monster Truck game with this 2WD, 4WS Crusher. Truck has nylon-fiber double wishbones all around. No word yet as to availability.



And what's this Nissan body doing on what looks like a Big Brute with dual shocks? ... But wait... What's that hiding under the front bumper? It looks like a motor. Could this be Kyosho's answer to the Clod Buster?

Pit Tips

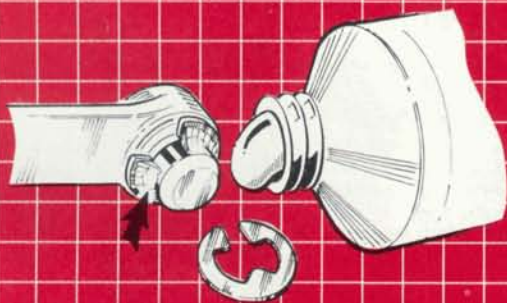
by JIM NEWMAN



USE FOR HAIRDRYER

Disassemble an old hair dryer; discard the recycler (found on some) and the heater, and connect a battery plug to the wires. Use this to discharge your battery pack and keep it cool at the same time. Put the pack on wood blocks for better air circulation.

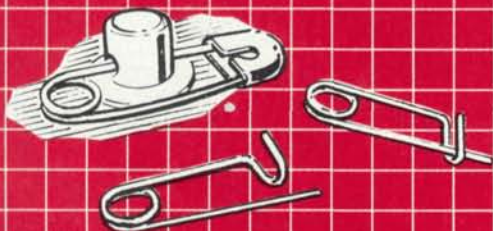
Damon Bottorf, Denton, TX



SECURING E-CLIPS

Sometimes E-clips pop out of their grooves under stress. To minimize this possibility, smear clear silicone tuby seal over each clip. For deliberate removal, the caulk will peel off easily.

J. Wayne Stevens, Winston-Salem, NC



REPLACEMENT BODY CLIPS

Some people still won't secure body clips with cord! Anyway, replacements are easily made in the field if you carry a box of safety pins. I've previously shown you how to disguise the safety pins to look like those very efficient pins used on full-scale airplanes. Just cut and bend the pin as shown, and it will never fall off.

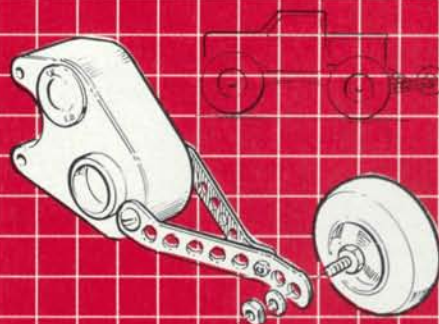
Carl Erickson, Rockford, IL



ANTENNA THREADING

Instead of trying to push the antenna wire up through the antenna mast, drop a threaded needle down through the tubular mast. Stick the needle through the end of the antenna wire and gently pull the wire back up through the mast by means of the thread.

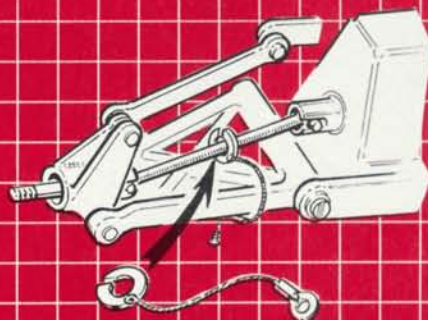
Joe Archambault Jr., Edwardburg, MI



WHEELIE LIMITER

This owner has a hot Blackfoot which apparently loves to do wheelies at the expense of the back bumper. The problem was solved by taking a 4-inch and a 2 1/2-inch length of Erector Set strip and bolting them to the gear-case bolts as shown. He then added a long bolt as an axle, on which he used a 1-inch-diameter model plane wheel.

Chad Willrath, Celina, OH



DOGBONE RETAINER

An impact in the wrong place can dislodge a dogbone and cause it to get lost in the dirt. To prevent that possibility, this owner soldered a piece of fishing leader to a lockwasher and crimped the opposite end of the leader into a small electrical terminal. He then opened up the lockwasher, slipped it over each dogbone, twisted it shut and secured the crimped terminal to the A-bracket with a small self-tapping screw.

Tony Newsom, Oakland, CA

Radio Control Car Action will give a free one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send your sketch to Jim Newman, c/o Radio Control Car Action, 281 Danbury Rd., Wilton, CT 06097. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO, AND NOTE YOU SUBMIT. Because of the number of ideas we receive, we cannot acknowledge each one, nor can we return unused material.



HOT-ROD

Ultimate in conversion simplicity; Striker, mount kit and coupe body.



EVER SINCE THE AUTOMOBILE was invented, people have been captivated by it. Numerous models have appeared and then disappeared, always being replaced by "revolutionary new designs in style and comfort." As the industry grew, more designers were hired, and they were expected to be responsive to public tastes. That was good, and at the same time, new designs were often works of art. However, to some people, the cars produced were impractical and ugly.

We entered the age of hot-rods. As a hot-rod nut, I read everything I can about cars. From my reading, I've learned that the '50s was the time when experimental modifications were first made, but these early experiments have resulted in a hot-rod



by PHIL SROKA

The limiting factor is imagination, not money!

V E R S I O N S

phenomenon that still exists today. If the designer of the '33 Ford coupe could see ZZ Tops' radical ride, I wonder if he'd like it; I think he would. Chopped tops, channeled bodies and insane powerplants mean that we can now create the ultimate in transportation—within reason!

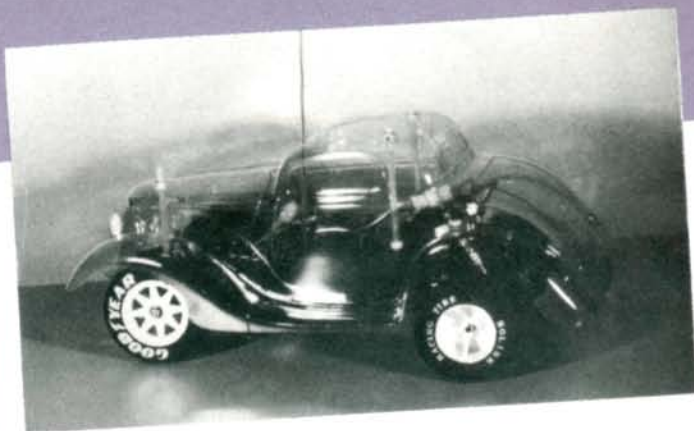
The same goes for our R/C cars. Having built a few street machines, I see walking into my local hobby shop as nothing less than visiting a speed shop, but on a much smaller scale. Producing a potent street motor can easily cost three grand, but if it's an R/C street machine, you can spend as little as \$60 to \$80. You can boost power by switching from a 6-cell battery to a 7-cell. An R/C car body can be adapted to replicate your favorite car, regardless of chassis. I'll show you how I produced three street machines, starting with the cheapest and progressing to the most expensive.

I'll start with the Striker. Produced by Tamiya*, which is known for high quality, this is a low-buck car that can be easily transformed for a

minimal cost. As with any hot-rod, my first concern was speed. To keep costs down, I opted for Revtech's* stock motor. This made a definite improvement not only to torque but also to speed. I finished the car with street tires (for good traction) and a Parma* '36 Ford body. The body was mounted easily with Parma's No. 10451 Frog body-mount kit, using steel brackets on the side of the chassis. (These came up through the running boards.)

My second car is the ever-popular Hornet. For power, a Revtech 22-wind Enduro modified motor was used. Small additions include a rear sway-bar from Parma along with heavy-duty steering linkage which improved handling. Parma's mounting kit for the Hornet also made mounting their '33 Ford body a breeze. When I first ran this combination with a 6-cell pack, the Revtech Enduro achieved blistering speeds which required a little practice to keep under control.

Finally, I used a Fox—Tamiya's ultimate 2WD creation. Previous modifications were retained (see *RCCA* May '88) and I added Advance* mags, MRC rubber and, for power,



Revtech's 19-turn contest Gold. Parma's '57 Chevy body (a well-known classic) was chosen. I made body mounts to ensure stability at high speed. To do this, I used Parma's chassis material. For the front I used a 1-inch strip screwed to the frame. The rear had to be extended to prevent the posts from coming through the rear window. This was done by cutting out a piece of chassis material in a large "C" shape. I then attached this to the rear shock-tower support in such a way that it cleared the rear shocks. I used 8-32 screws with Associated body mounts to obtain the correct ride height. The result was a realistic-looking great performer.

The three examples here show that no matter what you have to work with, you can produce the classic ride you've always wanted with just a little

Above left: Body mounted on Fox chassis. Make sure to check wheel wells for clearance that, if not obtained, could later rub paint off.

Above right: The trimmed coupe body is in place on the Hornet chassis and ready for paint.

work and without breaking your budget. See you at the next stoplight!

*Here are the addresses of the companies mentioned in this article:

Tamiya/MRC, 2500 Woodbridge Ave., Edison, NJ 08817.

Revtech R/C Products, 9525/B Cozycroft Ave., Chatsworth, CA 91311.

Parma International Inc., 13927 Progress Pkwy., North Royalton, OH 44133.

Advance Engineering, P.O. Box 766, Woodland Park, CO 80866.

Associated Electric Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.



The Fox requires specially made mounts. For best results use Parma chassis material, 8-32 screws and Associated top mounts.



All that's needed to mount Lexan body on the Striker is Parma's Frog body-mount kit.



BOOMERANG \$129.00

Falcon	95.00
Frog	109.00
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CONVERSION

SPRINT-CAR FEVER is setting in, and you Ultima owners can now get in on the action. But you can't afford one of those big-buck conversion kits, so what can you do? BoLink* has the answer. The guys in Atlanta have a quick and inexpensive solution to the problem of getting your Ultima around an oval.

B O L I N K /
U L T I M A

SPRINT C A R

b y T A I S U G A H A R A

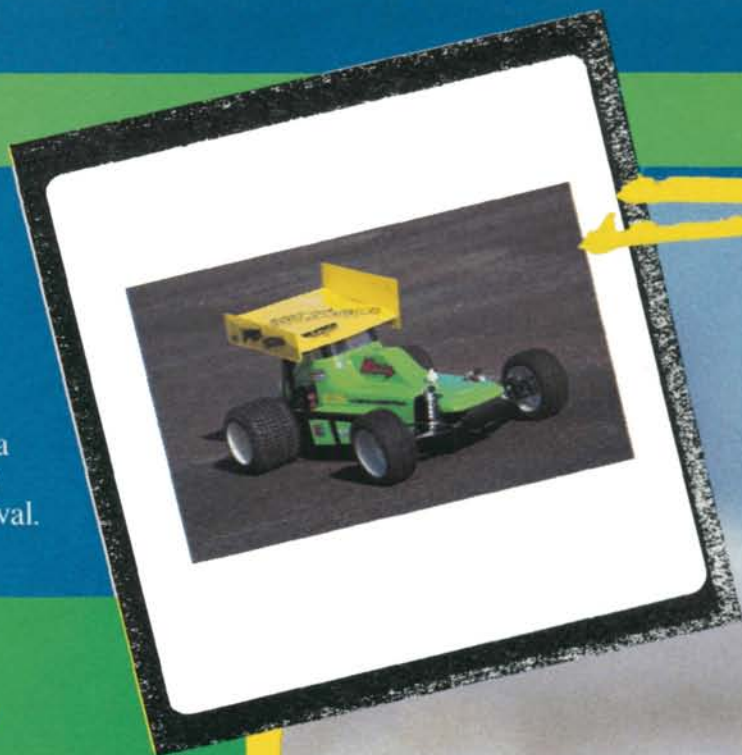
The Ultima Sprint Car Kit retails at less than \$40. The kit includes a pair of coil-over shocks and a clear sprint-car body with a large wing. Body mounts and a sprint-car decal sheet are included. It takes about 20 minutes to convert a Kyosho* Ultima off-roader to an oval-track sprinter, and this includes the time it takes to build two BoLink shocks. Further, since no permanent modifications are required, it should only take you 10 minutes to return the Ultima to an off-road setup.

The major changes that are made to the Ultima are the lowering of the CG and the installation of a softer shock on the front end (for faster steering). The standard front Ultima shocks are moved to the rear suspension, and the BoLink shocks then mount to the front in the original mounting locations. The instruction sheet tells you to mount the BoLink shocks with the body of the shock down, but I suggest that you flip the

shock over so that the shaft is down (just like the original shocks). This should slightly improve the handling by reducing the amount of unsprung weight.

You should replace the stock upper-suspension rods with the adjustable Option House rod set when converting the Ultima. This will make it possible to keep the tires flat to the track when adjusting the ride height.

Next, add the body posts and prepare the sprint-car body for mounting. When the body has been fitted to the chassis, you can paint and trim it. The instructions dealing with the wing tell you to use scrap Lexan to make a mount. This is the



HAVE WINGS, WILL SPRINT!



weak point of the kit, as it's difficult to make a durable, adjustable wing mount out of scraps. I used servo tape and a 2½x7-inch piece of Lexan to make a mount. It still needs beefing up.

When you're ready to race your Ultima Sprinter, adjust the ride height with the coil-over springs. BoLink offers stiffer springs for the front shocks. The hot setup may use a stiff spring on the right front shock and a soft spring on the left front shock. By changing the front and rear spring tension, the Ultima's steering can be

dialed in exactly where you want it.

I installed a BoLink electronic speed controller and a Revtech* motor. The speed controller works very well for oval racing, and it's very durable. For appearance, I dressed up the Ultima with Grand Prix tires and wheels from Advance Engineering*. For pavement-oval sprint racing, I switch to foam tires on Advance wheels. I use the stock Ultima tires for dirt-oval racing, unless the track conditions dictate a change.

Now all Ultima owners have a quick



Above: With the Grand Prix tires from Advance Engineering, the Ultima sprinter becomes one low-slung mean-looking machine. Right: The BoLink speed controller may not look high-tech, but it worked well.



remedy for sprint-car fever; go out and give your fellow racers a headache with your BoLink Ultima Sprinter conversions.

**Here are the addresses of the companies mentioned in this article:*

BoLink R/C Cars, 420 Hosea Rd., Lawrenceville, GA 30245.

Kyosho: distributed by Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

Revtech, 7401 White Ln., Bakersfield, CA 93309.

Advance Engineering, 180 S. Hwy. 67, Unit G, P.O. Box 766, Woodland, Park, CO 80866.



The Kyosho front shocks are moved to the rear on the Ultima sprint car.

The all-aluminum BoLink front shocks are included in the conversion kit.



PROJECT

HAVING IT YOUR WAY IS NO PROBLEM.
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FX 10
by PETER SNEDDON

JUST HOW DO YOU transform an already good, entry-level off-road buggy—the Futaba* FX 10—into a really potent performer? I'll show you how. The new stock Futaba FX 10 is as enjoyable to build as it is to race. I've used Futaba radios for quite a while; they're well-built, reliable and reasonably priced. The same is true of the FX 10. The FX 10 is a monocoque design with standard equipment that includes four-wheel independent suspension, three-stage speed control with forward and reverse, coil-spring shock dampers and a 540 class motor. The FX 10 is ideal for simply having fun with your car, or racing it in stock-class events.

But what do you do when you want to compete in the modified classes, or just want your FX 10 to go faster down the straightaways and have what's needed to take the curves? Today, there are many after-market parts that enable you to upgrade just about anything.

That's just one reason why our hobby is interesting and enjoyable.

The first thing I wanted to do was to minimize the friction at as many points as possible. I did this by replacing as many resin and oilite bearings as I could with ball bearings. I replaced all 11 large bearings and one small bearing, and this resulted in a very smooth differential operation, as well as almost frictionless movement of all the wheels. The larger





bearings are the 1150 size, and the smaller is an 850-size bearing. Your hobby dealer can give you more help with bearing sizes, as well as with the other parts I'll mention.

If your FX 10 is already assembled, I realize that it's time consuming to disassemble the gear case to get all the bearings in, but it's well worth it. The car will make better use of the power it now has, running times will increase, and cornering ability will remain consistent. However, if you use resin bearings in the front wheels, they tend to become oblong-shaped after some use, and, consequently, handling suffers.

Two modifications that made a big difference:
Above: The Kyosho SPA 480 WT (wet magnet). Only time will tell if the FX 10 gearbox is a match for this powerhouse.
Below: The undamped, spongy, stock front end of the FX was improved with these CRP oil coil-over replacement shocks.

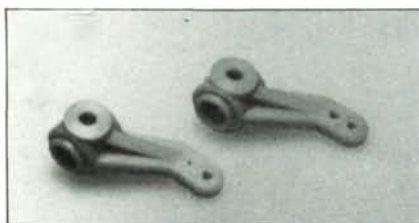


The next part of my strategy increases the power level. To compete in modified classes, you need the power to pass others on the straights; it's that simple.

To get the job done, I installed a very capable Kyosho* Option House SPA 480WT competition motor. This motor uses a new, wet-type ferrite magnet, has adjustable timing and gives the FX 10 all the acceleration it can handle. The instructions with the motor call for a break-in period of 10 hours on 3 volts, and this is necessary for good brush contact, so don't ignore the break-in period. At this point, the car has *more* power than it can handle, so the suspension needs to be updated to get better control of the increase in torque.

I changed the dampers at all four wheels to coil-over, oil-filled adjustable shocks, which made the car more adaptable to varied racing conditions. The Parma 1/10-scale short shocks (No. 12622) coupled with Parma's heat-sink coil-overs (No. 12640) gave me the correct travel for the rear. Tamiya* oil-filled shocks worked very well on our other test car. I used Custom Racing Products* (CRP) shocks for the front, and these fit perfectly with the hardware included.

I beefed up the steering on my FX 10



● CRP's heavy-duty steering-arm set coupled with Parma's heavy-duty tie-rod set gave the FX 10's front end much greater strength while cutting down on slop.

with Parma's* heavy-duty tie-rod set and CRP's stronger steering-arm set, which replaces the stock arms perfectly. A slight shaving of the plastic around the servo-saver was necessary to clear the tie-rod ends on the servo.

The adjustable shocks gave the FX 10 just what it needed to harness the power of the Kyosho motor and decrease the understeer that I'd encountered on curves while running



ASPHALT/DIRT-OVAL FX-10

THE FX 10 IS A NEW 1/10-scale off-road car from Futaba that's touted as the latest in entry-level design. The FX 10 is one of the newest entry-level cars on the market, and it sports a simple, easy-to-build design that's ideal for the enthusiast who's just entering the hobby/sport. The down side to most entry-level designs is that they become insufficiently challenging as the driver refines his or her driving skills. As you move up in the ranks, cars and drivers become more competitive, and this is usually to the disadvantage of those still running their entry-level cars. The redeeming quality of the FX 10 is that it's designed to accept after-market parts. These after-market parts, such as oil shocks, bearings, high-performance motors and even bodies, can refine the FX 10's suspension and handling characteristics to a point where you'll be able to race beyond the parameters of entry-level competition.

The SFXO prototype from Futaba is testament to the fact that the FX 10 is not only capable of being improved for its intended off-road use, but is also adaptable to other racing surfaces.

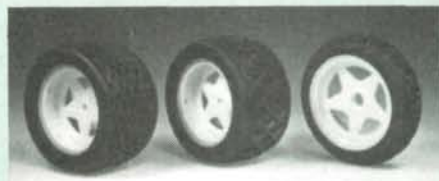
A careful selection of tires will allow you to run the FX 10 on both asphalt and dirt ovals. As with all other off-road cars, the crossover to asphalt racing will have to include stiffening the suspension with heavier oil and adding a set of road-racing tires and your choice of high-performance motor.

The electrical hardware (specifically, the speed controller) will eventually need attention. The FX 10 includes a

three-step speed controller that's very reliable, but it won't withstand the abuse of a modified motor. The amount of current drawn by one of these motors will make it through the original speed controller, which may even last for a while, but you should switch to a high-quality variable resistor or an electronic unit.

If you opt for an electronic speed control, there are a number of new Futaba units available, and these should suit almost any racer. For those racing at ROAR-sanctioned races or tracks, the Futaba MC109T or the more economical MC110T electronic speed controls are recommended. Both of these units have forward only with adjustable braking, and this is all that's allowed by ROAR rules. Drivers looking for an electronic speed control with reverse can use the MC111B or MC112B.

As you can see, there are a number of options available to FX 10 owners. Several manufacturers of after-market parts make hop-up parts for the FX 10 and, although you're unlikely to see the FX 10 in the limelight at a national event, there are enough parts available to keep the FX 10 competitive on a local level. ■



Left: Pro-Line's 427-R Cherokee extra-wide waffle rears.

Right: Pro-Line's 421-F Diamond front tires worked great on our asphalt version of the FX 10. Also reported to work well on hard dirt-oval tracks.

Center: The Pro-Line 428-R Commanche. All are mounted on Pro-Line wheels.

the new motor and stock suspension.

To transfer all this power to the dirt, I set up my FX 10 with CRP Dynamite spiked tires (No. 4223 in front, and No. 4212 in the rear). These low-profile tires gave me excellent traction in dirt, but they won't be good on asphalt. I mounted the tires on CRP front rims



CRP's contribution: their all-aluminum front-shock set and their Dynamite spiked tires.

(No. 4111) and Pro-Line* rears which were both one-piece designs and also very lightweight and easy to dye.

I enjoyed upgrading the FX 10 very much. I now have a fast dirt racer which can be adapted to many track conditions. One thing that made this project enjoyable was that every after-market part fit the car perfectly without major modifications. If I could change anything, I'd prefer an adjustable differential to harness the extra power.

*Here are the addresses of the companies mentioned in this article:

Futaba, 555 W. Victoria St., Compton, CA 90220.

Kyosho; distributed by Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

CRP, 3250 El Camino Real, B-3 Atascadero, CA 93433.

Tamiya/MRC, 2500 Woodbridge Ave., Edison, NJ 08817.

Parma International Inc., 13927 Progress Pkwy., North Royalton, OH 44133.

Pro-Line USA, P.O. Box 456, Beaumont, CA 92223.

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Order No. 3430

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REFURBISHING YOUR TIRED IRON

EVER WONDER WHY there are all those manufacturers out there making all those neat after-market parts for all us racers? I'll tell you why I think it happens...because we're always looking for *more*; *more* speed, *more* handling, *more* acceleration, *more* looks! Simple as that. *More!* Does anyone leave anything stock any more? Unless you compete in a "pure stock" class, you probably have trick shocks, tires, or something on your ride, right? I think it's really terrific that we have performance and appearance "menus" available for us to customize, specialize and "radicalize." Who says that each machine should be a carbon copy of the next one, anyway?

Like a lot of you, I have machinery around the garage that, if I was kind, I could call "tired"—maybe even "beat." It

generally sits there, neglected, because something newer, hotter, or trickier has replaced it as my prime mover. That was the case with my Hornet. Right!; the same Hornet that we tried to destroy for the May '88 issue; the one that sent even Dr. Go scrambling. I mentioned that, after being subjected to such harsh punishment, it deserved a new life, so I scheduled it for a refurbishment program. Although I



STREET MACHINES

by RICH URAVITCH



used the Hornet, the same techniques apply to nearly any car; it just takes a little thinking and planning, plus a couple of bucks to buy the accessories you want to install.

I've become very interested in on-

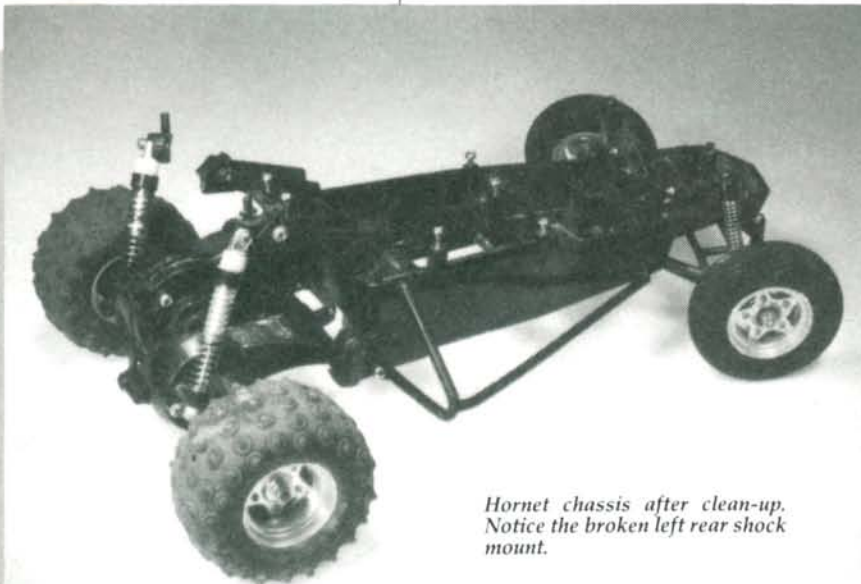
machines in the parking lot: my '57 Ford with the 352 Turnpike Cruiser engine, Al Cossari's '56 Chevy ragtop with a 283 power pack, a pair of '57 Plymouth Furys with *two* four-barrels apiece and a flock of other "hi-per"



Contemporary 'Vette or vintage coupe, body-changeover makes biggest difference.

road machines lately, especially rods and '50s and '60s street cruisers. After seeing the Parma* body for their new '49 Merc, the Hornet refurb. program was cinched. I was in high school in the '60s, and I remember some of the

machines. There was also Gene, the California transplant, and his chopped '49 Merc with the flathead equipped with six Stromberg 97s. With gas at about 35 cents a gallon, who cared? I loved that Merc, and never quite forgot it, so the Parma body was in! Once I'd decided on the body, next came the wheels and tires, then the shocks and, finally, the motor. In all fairness, I could have just changed the wheels and tires to replace the "knobbies" of the Hornet with the street variety, but I was really getting into it!



Hornet chassis after clean-up. Notice the broken left rear shock mount.



Wide waffle weenies along with chromed, deep-dish wheels chosen for rear of Merc.



Shocks used were off-the-shelf coil-overs from CRP.

The first step in the process was to disassemble the Hornet, including removal of the stock wheels and tires, radio, motor, shocks, front bumper, speed controller and body. The entire "tub" assembly was then given a warm bath using water and a dishwashing detergent. A stiff brush was used to clean the accumulated off-road junk out of the corners. After a thorough drying, a complete inspection was performed to make certain there was no chassis damage. Good thing, too! I found a broken left rear upper shock mount. I

made a simple repair with a small steel pin and was back on track again. Next, I re-lubed the gear set in the diff, prior to installing the Revtech* Superstock motor on which I'd already mounted the pinion from the stock can. This choice of motor really turned out to be overkill, because I don't really race the Merc, but it helped complete the project.

Choosing wheels and tires wasn't nearly as easy as I thought, but only because I made it that way. Actually, the wheels were easy; I used the chrome-plated plastic units from Pro Line*, which are designed for the Hornet. The tires, however, caused me to go shopping. I didn't really want to use slicks, because they just didn't look right. I could have shaped them and maybe added a more realistic-looking tread, but I really wanted this project to be done with readily available (instead of custom-made) components. I finally chose the Pro Line "waffle" tread skins, using fat 1 1/2-inchers on the rear and three-quarters of an inch up front. I did this, incidentally, *without* having fit the body first! This could have been a costly mistake that would have required

scrapping the wide weenies for something about a quarter-inch more conservative, or involved a rear-end narrowing. As it turned out, they *just* cleared the wheel wells. My suggestion is to fit the body first, before selecting tire and wheel widths!

Now to the body: I trimmed the Lexan body using a scissors for the straight stuff and a hobby knife with a sharp No. 11 blade for curved openings like the wheel wells. I used the Parma Universal Body Mount Kit to make a

• • • • •
"I loved that Merc and never quite forgot it.."
 • • • • •

four-point suspension system, which I prefer to the three-point, especially when mounting full-fendered bodies. It may sound basic, but it's much easier to locate accurate mounting holes in the body *before* you paint it. Some guys get so impatient; they paint, and *then* have to hunt for the hole locations, and this generally means at least a touch-up of the paint. It's *so* much easier if everything's transparent.

The wheelbase of the Hornet is slightly shorter than the body of the Merc dictates, but it was close enough so that you'd never notice, especially after I'd added the new, optional, "bubble" fender skirts (also available from Parma). The usual body preparation was accomplished by first washing the body thoroughly in warm soapy water, drying completely and masking off all the windows from the inside. This was followed by a light scuffing with grade 000 steel wool, as this will make the paint stick much better. I usually wipe the surface with denatured alcohol to remove any fingerprints and steel-wool residue. Alcohol is used because it evaporates rapidly and won't cause the masking tape to lift.

The flames were masked and airbrushed first, after protecting the rest of the body from overspray with newspaper and masking tape. When the

(Continued on page 62)



Above: Hornet chassis during first step of strip-down.
 Left: Original Hornet, after being seriously abused, deserved regeneration.



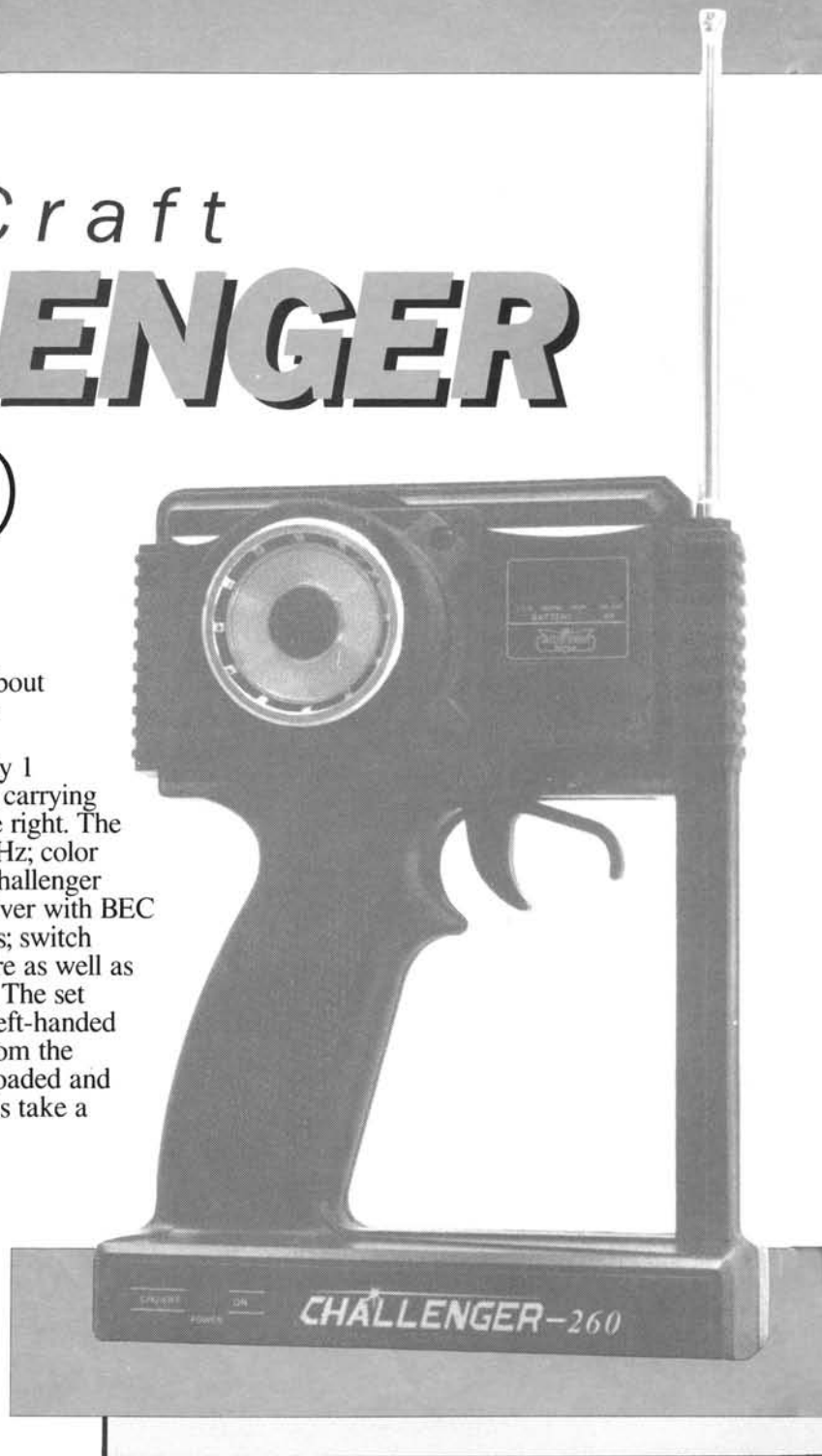
Aristo-Craft **CHALLENGER** 260

by CHARLIE KENNEY

THE FIRST THING that strikes you about the Aristo-Craft Challenger 260 is its diminutive size; its dimensions are 8¼x5½x3¼ inches, and it weighs only 1 pound, 3 ounces with eight alkaline pen-cells. A carrying handle is molded into the transmitter case on the right. The set I received operated on channel 64, 75.470MHz; color code: blue/ yellow. The system consists of the Challenger transmitter, Model 260; one HP-2RNB750 receiver with BEC (Battery Eliminator Circuit); two HS402X servos; switch harness; servo grommets; and mounting hardware as well as three different, spare, servo arms for each servo. The set also allows you to change the transmitter from left-handed to right-handed by moving the steering wheel from the front to the rear position. The throttle is spring-loaded and has a two-position trigger-centering feature. Let's take a look at the Challenger 260 system features.

Transmitter—Model 260

- Super-heterodyne digital proportional.
- Pistol-grip 2-channel, AM radio.
- "Torque-trol" strain-resistant steering wheel.
- Servo-reversing switches.
- Charger connector for optional Ni-Cd.
- LED indicator for RF output.
- LED indicator for battery.
- LED low-power flashing indicator.
- New, gear-type steering movement for accurate control.
- Optional rechargeable gel-cell battery pack available.
- High power output (500mW).
- Adjustable trigger-neutral for three positions; position 1 is full 38-degree deflection, 19 degrees either side of neutral; position 2 is 28.5 degrees for throttle for braking. In position 3, the throttle and brake are both 19.5 degrees.
- Excellent transmission range; I checked to 500 feet with solid signal.



Receiver—HP-2RN 75D

- Small, lightweight, rugged and high-performance AM 2-channel receiver operating in the 75MHz band.
- Narrow-band receiver design using ceramic filter for maximum selectivity and resistance to adjacent channel interference.
- Power requirement: 6V DC; 4 AA alkaline batteries shared with servos.
- External removable crystal.

- Polarized connectors to ensure proper connection.
- 39-inch receiver antenna.

Servo—HS-402

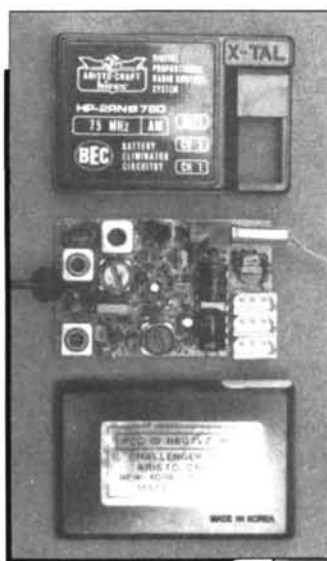
- Small, lightweight, heavy-duty servo.
- Three different spare servo arms provided.
- Servo case is made from high-impact-resistant plastic.
- Servo is dustproof and waterproof.
- 10-inch connecting cable and polarized connector are standard. Indirect drive for gear-train drive protection.
- Dual, oil-free bearings.

Well, so much for the details on the system; now let's talk about this 1-pound, 3-ounce transmitter. Compared with some of the single-stick transmitters that I fly, holding the Challenger 260 is like holding a feather. As the transmitter is always the heart of the radio system, let's start there. To the left is a pistol grip which is part of the transmitter's black plastic case. On top and to the right is a 30-inch, 6-element telescoping antenna which radiates the transmitter signal. At the top center is the



Transmitter rear, battery box removed. Note servo-reversing to left, crystal to right.

Right- or left-handed operation, good balance and servo-reversing make the 260 a good buy.



Above: Small HP-2RN 75D receiver measures only 2.13x1.38x0.75 inches.

Right: Challenger 260 accessories; note switch with BEC "pigtail." You provide connector.



steering wheel and, above that, the steering-control trim adjust. To the right of the steering wheel are battery-status indicators which register the condition of the battery (low, normal and high). The fourth indicator, which is green, shows when the transmitter is transmitting.

At the bottom of the transmitter is the power on/off switch; if you're using Ni-Cds, the switch must be off for charging. The charge receptacle is on the left side close to the battery box. Be aware that when the battery lights move from high to normal to low (a flashing light), it's time to change the batteries or recharge them if you're using Ni-Cds.

On the back of the transmitter are the three throttle-neutral adjustments. (See Figure 3 for details.) The removable control wheel may be switched by loosening the four screws on the front and on the back. It

may also be changed from right-handed to left-handed if you want. On the bottom rear of the transmitter are the Channel 1 and 2 servo-reversing switches. "Normal" is to the left and "reverse" is to the right. The removable transmitter crystal is to the right of the servo-reverse switches. Remember, use only 7MHz crystals on cars and boats.

Opening the back of the transmitter reveals battery-box space for eight pen-cell

TRANSMITTER HANDLING INSTRUCTIONS

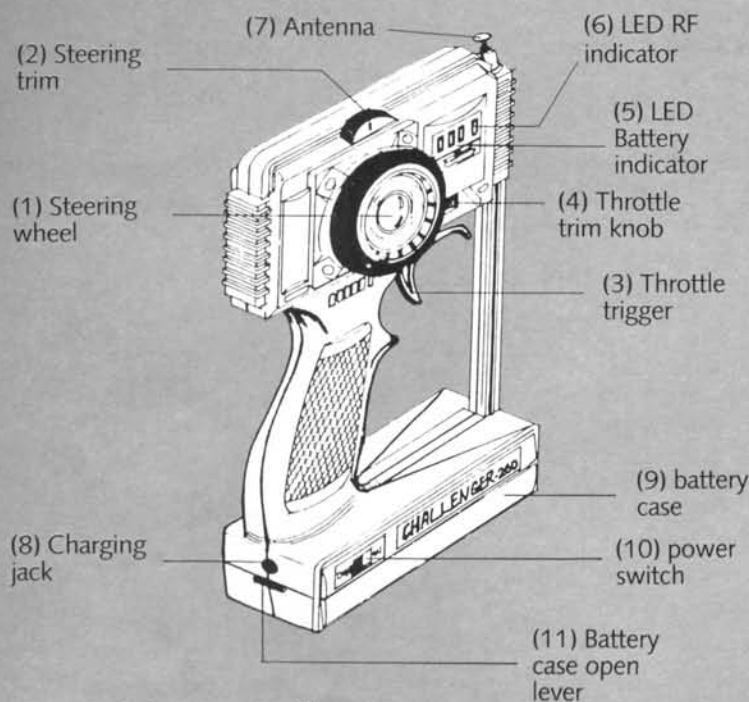


Fig.—1

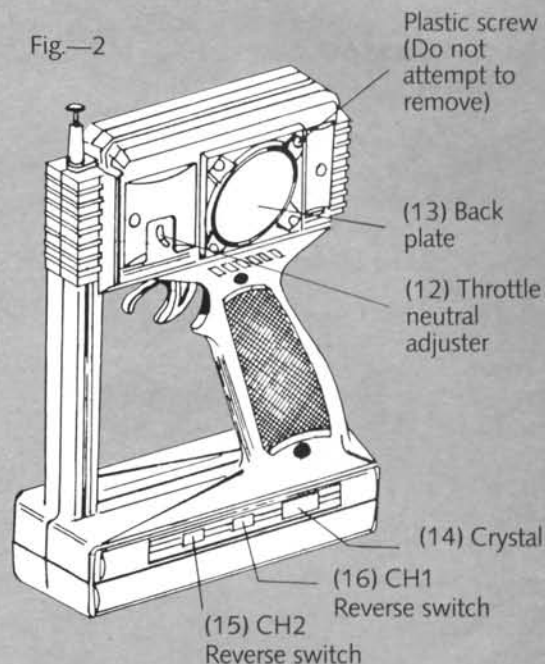


Fig.—2

(AA) batteries, Ni-Cds or alkaline cells. If you want to use Ni-Cds in the transmitter or vehicle packs, you must buy a suitable charger. Aristo-Craft sells a very inexpensive unit.

I thought the wheel-reversal option, the excellent functional design of the transmitter and the accessories were all great.

The Challenger 260 sells for only \$60—a very reasonable price for a radio of this quality.

**Here is the address of the manufacturer featured in this article:*

Aristo-Craft, 346 Bergen Ave., Jersey City, NJ 07304. ■

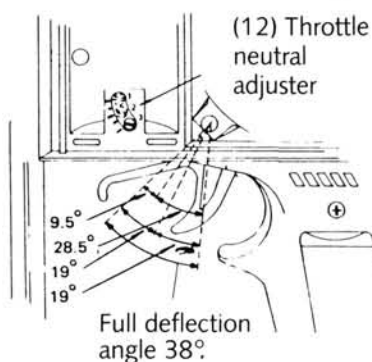


Fig.—3

When set to 1, the full deflection angle is 38°. When set to 2, the throttle throw is 28.5° and the brake deflection angle is 9.5°. When set to 3, the throttle and brake (reverse) throws are both 19°.

- For engine cars, position 2 is recommended.
- For electric cars, position 3 is recommended when equipped with reverse mechanism and position 2 is recommended when equipped with a brake and forward only.

SPECIFICATIONS

TRANSMITTER (HP-2TS-759)

Operating System: Comfortable steering wheel and throttle trigger

Number of Channels: 2

Frequency: 75.470MHz, Channel 64

Power Requirement: 9.6V Ni-Cd, 12V with eight alkaline batteries

Current Drain: 90mA at 12V DC

Dimensions (body): 8¼x6½x3¼ inches

Weight: 1 pound, 3 ounces (with eight alkaline batteries)

Antenna: 30 inches long using six-element telescoping antenna

RECEIVER (HP-2RN 75D)

Receiver Frequency: Channel 64, 75.470MHz

Number of Channels: 2

Modulation: AM

IF: 455KHz

Power Requirements: 6V at 15mA

Size: 2.125x1.375x0.75 inches

Weight: 1.5 ounces

SERVO (HS402X)

Control System: + pulse control (1.520 μ neutral)

Operating Angle: Rotary system, one-side 40 degrees

Power Requirement: 6V (shared with receiver)

Current Drain: 6V, 6mA (at idle)

Output Torque: 42 ounces to the inch

Operating Speed: 0.24 seconds/60 degrees

IC: M51660L or NE544

Dimensions: 2x0.8x1.9 inches

Weight: 1.5 ounces (with batteries)

Track Report

ADD SOME FUEL TO YOUR
R/C FIRE WITH KYOSHO'S
LATEST NITRO BURNER!

by STEVE POND



IF THE SMELL OF BURNING nitro and the sound of a screaming 2-stroke engine get your R/C blood boiling, don't flip to another page, because you've thumbed your way to an article on one of the latest, most innovative $\frac{1}{8}$ -scale off-road cars. The new Burns $\frac{1}{8}$ -scale off-road racer is Kyosho's* latest "fueler," and it has the same design features and suspension geometry as the very successful $\frac{1}{10}$ -scale Mid Optima electric-powered car.

The backbone of the Burns chassis is a strong, flat, aluminum chassis pan. At both ends of the aluminum pan is a bevel-gear differential surrounded by strong, glass-filled, nylon housing components. This housing supports the wishbone-type suspension that is also formed of glass-



K Y O S H O BURNS

filled nylon. To make the Burns more adaptable to a variety of tracks and conditions, each of its corners is fitted with adjustable upper arms. The rear of the Burns has the standard dogbone to transmit the power to the wheels, but the front is fitted with the new universal joint half-shaft which has become so popular with electric-car enthusiasts.

Used to dampen all these suspension components are the same Gold shocks that are used for the electric cars. However, there are a few minor changes. To support the heavier overall weight, the shocks are fitted with a substantially heavier set of springs. The heavy springs are accompanied by heavy-duty pistons with smaller bleed holes to slow the dampening action for the big car. To connect each end to the powerplant, another set of dogbones converges upon yet another differential that is located in the center of the car. When utilized, the center differential can help the Burns to get its footing on unusually rough terrain. For running on smoother surfaces (like an oval), the differential can be locked

up. For anything between these extremes, the center differential can also be adjusted by shimming the



KYOSHO BURNS

Type: Off-road 4WD
Scale: 1/8

DIMENSIONS:

Overall Length 18 inches
Width 11 1/16 inches
Height 8 inches
Wheelbase 12 1/2 inches
Front Track 9 7/8 inches
Rear Track 9 7/8 inches

WEIGHT:

Gross
(w/empty tank) 6 lbs., 12 ozs.
Balance (front/rear) 46/54

BODY:

Type Single-seater
Material Lexan

CHASSIS:

Type Pan chassis
Material Aluminum/nylon

DRIVE TRAIN:

Type (prim./sec.) Spur gear/shaft
Differential (3) Bevel gear

SUSPENSION:

Type
(front/rear) Independent A-arm/
Independent A-arm

Dampening

(front/rear) Oil/oil

TIRES:

Front: Type Low-profile knobby
Dim. 1 3/4 x 4 1/4 inches
Rear: Type Low-profile knobby
Dim. 1 7/8 x 4 1/4 inches

BEARINGS

Type Ball bearing

ACCELERATION

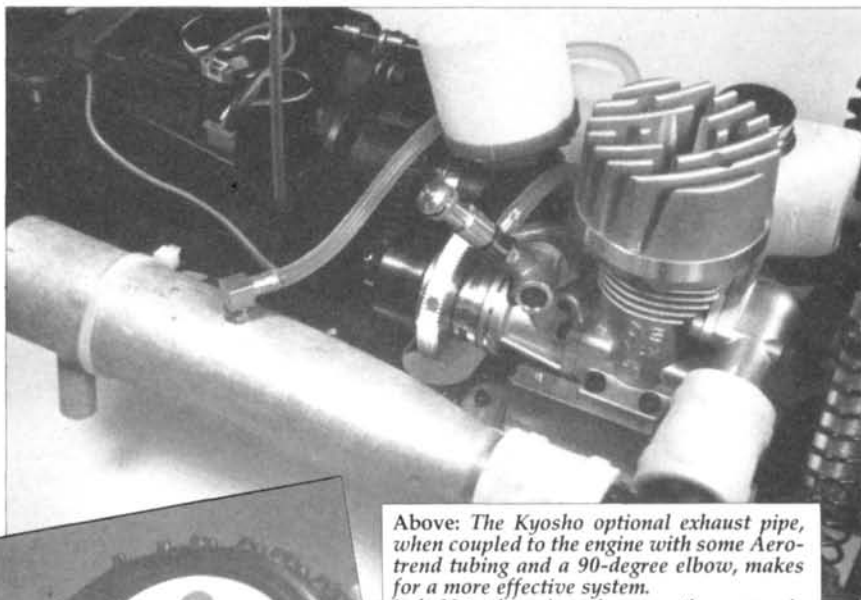
Distance 165 feet
Time 2.84 seconds
Speed 49mph

OPTIONS (as tested):

Kyosho-tuned exhaust, Kyosho rear-wing
O.S. .21 VH-BR ABC

COMMENTS:

The Burns kit is of a very high quality, and it has strong suspension and chassis components. The use of three differentials allows the Burns to adapt to a variety of terrains. The center differential also has a set-screw that allows it to be locked to get more traction in loose dirt. Throttle response is great, and top speed is very high. Smaller spur gears are available to give more low-end power and reduce top speed. As the Burns is gas-powered, it will require a lot of support equipment, and because of its inherent gas-engine vibration, it will also need more meticulous maintenance.



Above: The Kyosho optional exhaust pipe, when coupled to the engine with some Aero-trend tubing and a 90-degree elbow, makes for a more effective system.
Left: Note the unique tire-mounting groove in the lightweight wheels.



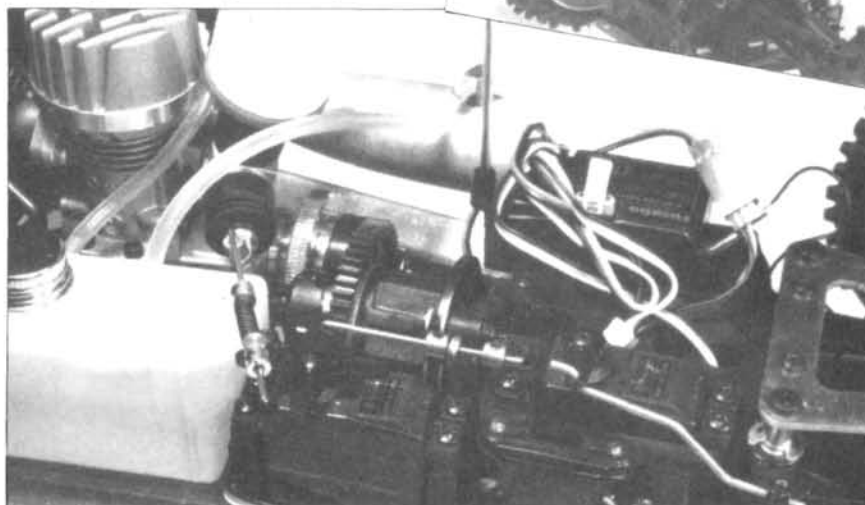
spring tension for different track conditions.

A spur gear is connected to the center differential, and this is driven by a centrifugal clutch on the engine. Also connected to the center differential is a disk-brake assembly. The actual disk floats on the differential, and the brake pads are actuated by a cam that is connected to the throttle servo. To top off the package, a complete set of ball bearings (18) is used.

To get the Burns up and running, some additional purchases must be made. To power the big chassis, you'll

need a 3.5cc engine. There's an incredible variety of available 3.5cc engines, and each one has a different level of performance and price. The high-dollar competition engines will move the Burns along at a considerable clip, but these engines work with tighter tolerances and more radical port timing so that they are harder to start and require a trained hand to keep them running at their peaks.

At the other end of the scale is old



Top: The optional wing-mounting structure not only supports the wing, it also protects the engine and radio gear during a rollover.
Above: Installation of the radio gear surrounds the center differential and disc brake.

faithful. The reliable engine usually requires less break-in and is either easy to tune or comes pre-tuned from the factory. A negative aspect of this type of engine is that reliability usually comes at the cost of performance. This isn't to say that the car won't move with

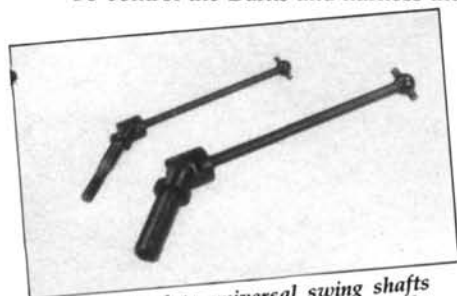


The Burns is all business with the adjustable upper wishbones, Kyosho Gold Shocks, heavy-duty aluminum axle blocks, ball bearings, and tough nylon suspension components.

one of the low-cost, reliable engines; it just won't be competitive against the high-performance engines.

The manufacturer recommends using a 3.5cc O.S. rear-exhaust ABC engine. After building many gas-powered cars and using a few different brands of engines, the O.S. engines have become my personal favorites. These engines reach a happy medium between reliability and performance. They're easy to start, put out enough power to move the Burns along at a healthy rate and have an extensive line of readily available parts.

To control the Burns and harness the



The heavy-duty universal swing shafts for the Burns (shown here next to the smaller Optima Mid swing shaft) puts the power to the wheels with less friction and a steeper angle of operation.

power of the engine, a radio system is also required. Because the Burns is made by Kyosho, the installation naturally favors the use of the Pulsar systems, but, with very little modification, the Burns accepted the Futaba* Magnum which, I feel, is the

supreme radio for gas-powered cars. Along with the long list of features that's usually included with a radio of this caliber, the Magnum includes a warm-up circuit that is exclusively for use with gas engines. To fit the high-torque FP-S131S servos, the mounting plate had to be widened, and this was accomplished with the use of a hobby knife.

ASSEMBLY: Assembling the Burns doesn't require any special tools. However, it *does* require some special equipment and some additional precautions because of the vibration-prone gas engine (not just the engine used here; all gas-car engines produce a great deal of vibration).

The additional support equipment needed to run the Burns includes a 12V starter with a starter-wheel attachment for use on cars, a glow-plug connector with a power source, a good glow fuel with a 10-percent to 25-percent-nitro content and a means of getting the fuel into the tank. If the Burns is going to be run in a remote area that isn't accessible to an automobile, a 12V battery is also needed to power the starter.



The center differential (shown here with the spur gear attached) allows you to tailor the handling characteristics of the Burns to your driving style.

The actual assembly of the Burns begins with the shocks. The way in which these are assembled will play a great role in how consistently the suspension will react, so take the time to ensure that they're assembled properly. As mentioned before, these shocks are equipped with heavier coil-overs, so it will take a heavy hand to install the shocks or to make adjustments.

I chose to use the heavier of the two oils (green) that are included in the kit, and it seemed to perform rather well.

(Continued on page 70)

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HOT-ROD

BUYER'S GUIDE



THE WORD IS OUT: *Street is neat!* (R/C street, that is.) And if you've been thinking about putting together that classic street machine, there are no more excuses. Here's a sample of bodies and accessories to convert that tired off-roader to a rubber-burning show stopper. The manufacturers have jumped on the bandwagon, and there's a lot of new stuff in the works right now. See you at the drive-in next Saturday night! ■

BOLINK



1966 Mustang Fastback

The '66 Mustang Fastback body from BoLink is available in clear Lexan or painted and will fit many R/C buggies with a BoLink Body Mount Kit. Order No. BL-2374



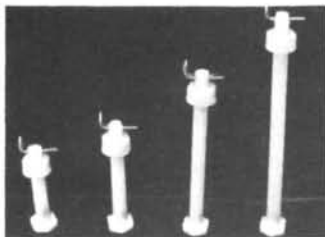
'55 Chevy

The '55 Chevy body from BoLink is a detailed 1/10-scale reproduction of one of Chevy's most popular street rods. Available in clear Lexan or painted. Order No. BL-2382



'67 Camaro

One of the hottest classic cars ever. Body is available in clear Lexan or painted. Order No. BL-2371



BoLink

BoLink offers Body Mount Post Kits ranging from 1½ to 4 inches in height to accommodate almost any car/body combination on the market.

PARMA



'57 Chevy

Parma's latest 1/10-scale body is the classic '57 Chevrolet. Available in clear Lexan, it sets the standard for detail and realism. Order No. 10234



'33 Ford Coupe

Parma's '33 Ford Coupe is available painted in a variety of colors. Saves the trouble of masking and painting. Order No. 10227P



Roadster Body

Parma's '27T Roadster 1/10-scale street rod is a higher level of realism. Available in clear Lexan, it fits most 1/10-scale cars with the use of a Parma Body Mount Kit.



'49 MERCURY

The classic '49 Mercury is another new boulevard blaster. Available in clear Lexan plastic, it fits most cars with the use of a No. 8012 body-mounting kit.



'36 Ford Coupe

The Parma '36 Ford Coupe body is formed in clear Lexan and has all the extra detail that's standard in all Parma bodies. Order No. 10231



Willy's Coupe

Parma's 1941 Willy's Coupe is a reproduction of a popular classic car. Available in clear Lexan, it has the detail that is Parma's trademark. Order No. 10242



Concours Decals

These decals will enhance all your truck, car, and buggy bodies. Fits both 1/10- and 1/12-scale bodies. Order No. 10604 for Flames; No. 10607 for Hot Rod; No. 10609 for GM; No. 10606 for NASCAR; No. 10605 for Lays Chips



Optima Sponge Slicks

Parma's Optima Sponge Slicks are designed for use on stock wheels. They are perfect for carpet, asphalt, or any smooth surface. Order No. 12005



Fox Sponge Slicks

Parma now offers rear sponge slicks for the Tamiya Fox. These are ideal for on-road racing and easily fit the stock wheels.

ADVANCED ENGINEERING



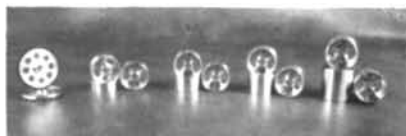
1/10-Scale Customized Street Rods

Create your own 1/10-scale custom rod by choosing any combination of: four different Lexan bodies, three different styles of wheels, and four different tread designs on grand Prix Tires.



1/10- and 1/8-Scale Natural Rubber Tires

Grand Prix Tires are available in four sizes of slicks, or two sizes of Street Type Tires that are available in four different tread patterns. Race Master Tires are available in two sizes.



1/12-Scale Aluminum Wheels

Front wheels are available in four widths and use 5/16" Dia. bearings. Rear wheels have universal 2-bolt mounting pattern to fit most 1/12-scale cars. Both front and rear wheels are available in 5-slot or 8-hole styles.



1/10-Scale Aluminum and Nylon Mini-Mags

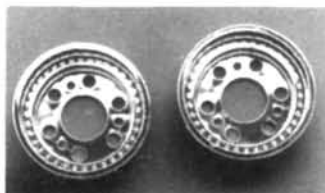
1/10-scale wheels are available in ten sizes and have 2- or 3-bolt Universal Mounting Pattern Hubs that are available for many 1/10-scale cars. All wheels come in 5-slot or 8-hole styles.

PRO LINE



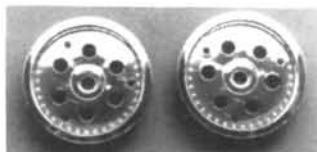
"Cherokee Waffle"— Warrior Series

The Cherokee Waffle rear tire is extra-wide with a low-profile, which is ideal for hard surfaces. Order No. 427-R



Chrome-Plated Wheels

Chrome-plated rear rims for the Associated RC10. Order No. 2516



Chrome-Plated Wheels

Dress up your RC10 with these chrome-plated wheels from Pro Line. Order No. 2515



Comanche

The Comanche rear tire is extra-wide and low-profile with a large waffle-type tread that's ideal for hard surfaces. Fits Pro Line and other 2-inch rear rims. Order No. 428-R



"Diamond"—Fast Track Series

The Diamond is a soft-compound front tire with a waffle-tread design that has great traction on medium-to-hard surfaces. Fits Pro Line and other 1.5-inch rims. Order No. 111-F



Diamond

Diamond front tires are the same as the 111-F tires but are made for 1.9- and 2.1-inch front rims. Order No. 018-F for 1.9-inch, No. 421-F for 2.1-inch

McALLISTER RACING



Body Mounting Kit

The Body Mounting Kit comes with an assortment of body posts, spacers, washers, and different length screws.



Custom Paint Decals

Give your car the custom-painted look with these color decals designed by nationally known illustrator, Gary McAllister.

Order No. D-206 Eagle Edition; No. D-207 Outlaw Edition; No. D-208 Monster Edition; No. D-209 Snake Edition; No. D-214 Hammer Edition; No. D-215 Iron Bull Edition

AUTOGRAPHICS



Decal Sheets

AutoGraphics has added a number of new decal sheets to its already large selection. The Pennzoil decal sheet features the Pennzoil logo in a variety of sizes and various other sponsor decals found on the Indy car of Rick Mears. The Team USA decal sheet features original artwork flying the name of Team USA. The Stripe Kit is a new approach to the age-old task of detailing your R/C car. Simply cut the stripes from the decal sheet and apply them to your body.

KOH-I-NOOR



DeVilbiss Aerograph "Sprite Major"

The Sprite Major is for all airbrush applications where fine atomization, delicate shading, variable control, and fine-line capability are needed. Optional low-flow nozzle, needle, and air cap are available to provide an identical output to the Sprite 1-ounce suction-fed color cup.

BADGER AIRBRUSH



Gravity Feed Airbrush

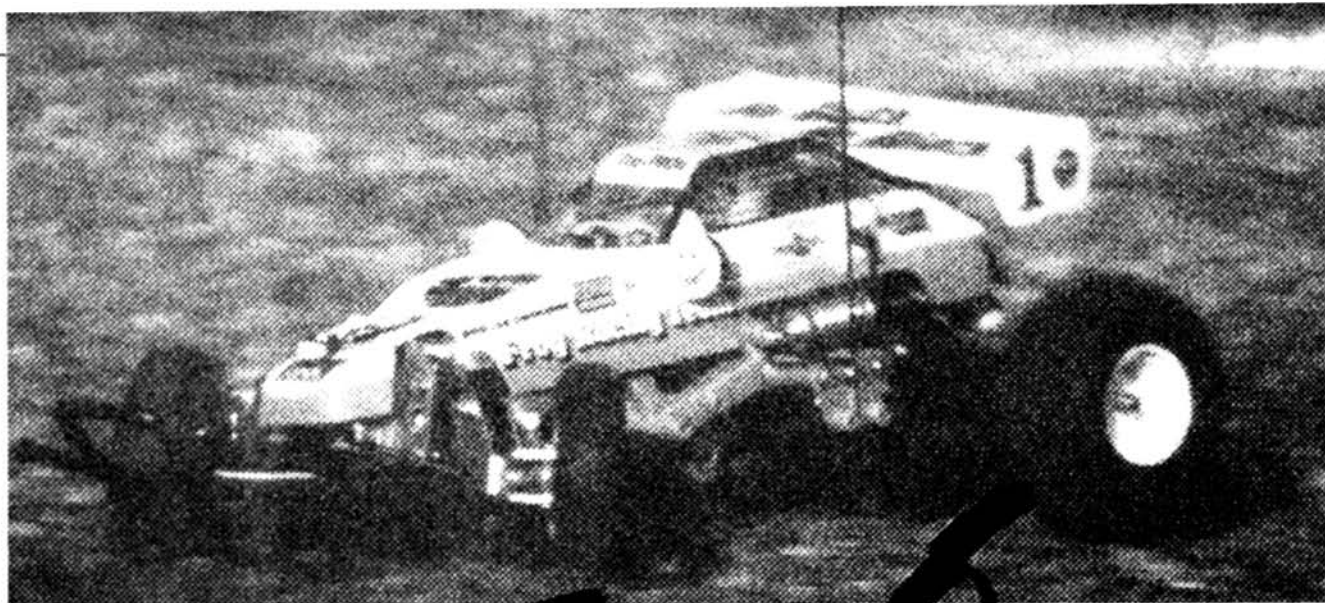
Badger Airbrush Company announces the introduction of two new 200 Gravity Feed series airbrushes, the 200-G, and the SG. Both models will spray ink, dyes, water colors, air-opaques, and thinly reduced acrylics. Model 200-G has a permanent top-mounted 1/16-ounce color, the Model 200-SG has no color cup, only a fluid cavity to hold small amounts.

CRP



Dynamite On-Road Rear Tire

Wide-grooved slick rear tire that's made of soft rubber allows you to run your 1/10-scale off-road car on asphalt. Fits the Frog, Hornet, Grasshopper, Super Champ, and other 1 1/2-inch rear rims. Order No. 4221



C • R • P

FROG

by RICH
HEMSTREET

MOTOR MOUNT

*Gear Changes
Made Easy.*

ONE OF THE most effective changes you can make on your car is to switch gear ratios. If your car runs for two minutes after the check-

ered flag falls, your gearing is probably wrong, and you're not getting the most out of your motor or your batteries.

But what if you race a Tamiya/MRC* Frog, Hornet or Grasshopper? You can't make gear changes on these cars, right? Wrong! Thanks to Custom Racing Products (CRP)*, you can now change the gear ratios on any of these popular cars.

The CRP Frog Motor Mount (No. 2107) works on the Frog, the Hornet, or the Grasshopper. It's made out of two pieces of fiberglass; one piece is mounted on the gearbox, while the other is attached

to your motor. The gear cover has to be removed if you want to use the motor mount. You have to look into the gearbox to be sure that the gear mesh is correct. After you've tightened the motor into place, put duct tape over the opening to keep dirt out of the gearbox.

Now that you can replace the standard 18-tooth pinion in your Hornet, what do you replace it with? Generally, you'll be looking for more speed and less run time. To achieve this, try switching to a 19- or 20-tooth pinion.

What if you have a high-rpm modified motor that won't make time with the 18-tooth pinion? In this case, you can switch down to a 15-, 16-, or 17-tooth pinion. Also, if you just want more run time while zipping around your yard with a stock motor, you can install either the 15- or the 16-tooth pinion.

The Frog Motor Mount is just what you need to change the gears in your Frog, Hornet or Grasshopper. Get the most out of your motor and batteries, thanks to CRP.

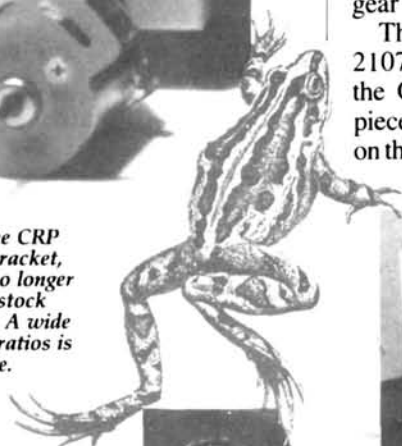
**Here are the addresses of the companies mentioned in this article:*

Tamiya/MRC, 2500 Woodbridge Ave., Edison, NJ 08817.

Custom Racing Products, 3250 El Camino Real B-3, Atascadero, CA 93422. ■



By adding the CRP adjustable bracket, the Frog is no longer limited to a stock ratio pinion. A wide selection of ratios is now possible.



Now you can change gears! The Hornet instantly becomes more suitable to a variety of track conditions. Note slot and locking nut.



This simple bracket makes it all possible. The standard 18-tooth pinion can now be replaced.



MIDNIGHT MADNESS

by ERIC GOLDSCHRAFE

Mount your new hot-rod body on your Grasshopper/Hornet chassis with this simple conversion.



'49 Merc body gives the Hornet chassis a new lease on life. Subtle candy-apple finish lends clean appearance.

TWO CARS LINE UP on the deserted stretch of blacktop, and the "ready" signal is given. A quarter of a mile away, a light blinks and the race is on. The big slicks bite into the pavement and the orange Camaro explodes off the line, pulling a holeshot on its opponent. Neither driver backs off as the cars streak through the

night, chrome glinting occasionally as they zoom past street lights. In just a few seconds the Z-28 whizzes past the crowd at the finish line,

several lengths ahead of the other racer. Moments later, the two machines

idle back to the crowd and park among the group of MoPars, Chevys, GNX Buicks,

and a couple of 5-liter Mustangs. What's a street race doing in an R/C car magazine?

Well, the owner of the Camaro just picked it up and put it into the trunk of his full-scale car—it's a 1/10-scale model!

This race took place in an area of Long Island once known as one of the top three street-action locations in the nation. *Car Craft* magazine included "The Avenue" among its top ten cruising (street racing) spots, and printed maps and directions. Hot-rodders from nearby states mingled with local racers on Friday and Saturday nights, and hundreds of street machines filled shopping-center parking lots until the wee hours of the morning.

Twisted Sister (the rock group) recruited many of the cars seen in their "Hot Love" video from "The Avenue," and TV and newspaper articles contributed to the increase in knowledge of this nocturnal activity.

While most of the hard-core street racing has died off or moved to other locations, "The Avenue" is still a popular meeting place for hot-rodders and their street machines. A big difference these days is that a lot of the SS 396s are really powered by RS 540s. The "real" cars sit parked in neat rows, while radio-control street machines cruise up and down the parking lots, some just out "looking mean," and others looking for "action." Whether they're trying to hold on to their old memories, or just want to be part of the street scene, a lot of



SS 396 Chevelle typifies the big-block street racer. Detailing pays off.



One of the 60's top guns...the Dodge R/T complete with candy-blue finish and white comp stripe accent.

modelers are making models of easily recognizable prototypes and having fun cruisin'. The muscle cars of the '60s—like Camaros, Mustangs, GTOs and Chevies perched on mag wheels and wide racing slicks—contrast sharply with the "kemped-out," fat-fendered '49 Mercs and '57 Chevys with fender skirts, wide whitewall tires and "moon" hubcaps, their bodies nearly scraping the pavement. Classic, early Ford hot-rods and late-model pick-up trucks are also in evidence.

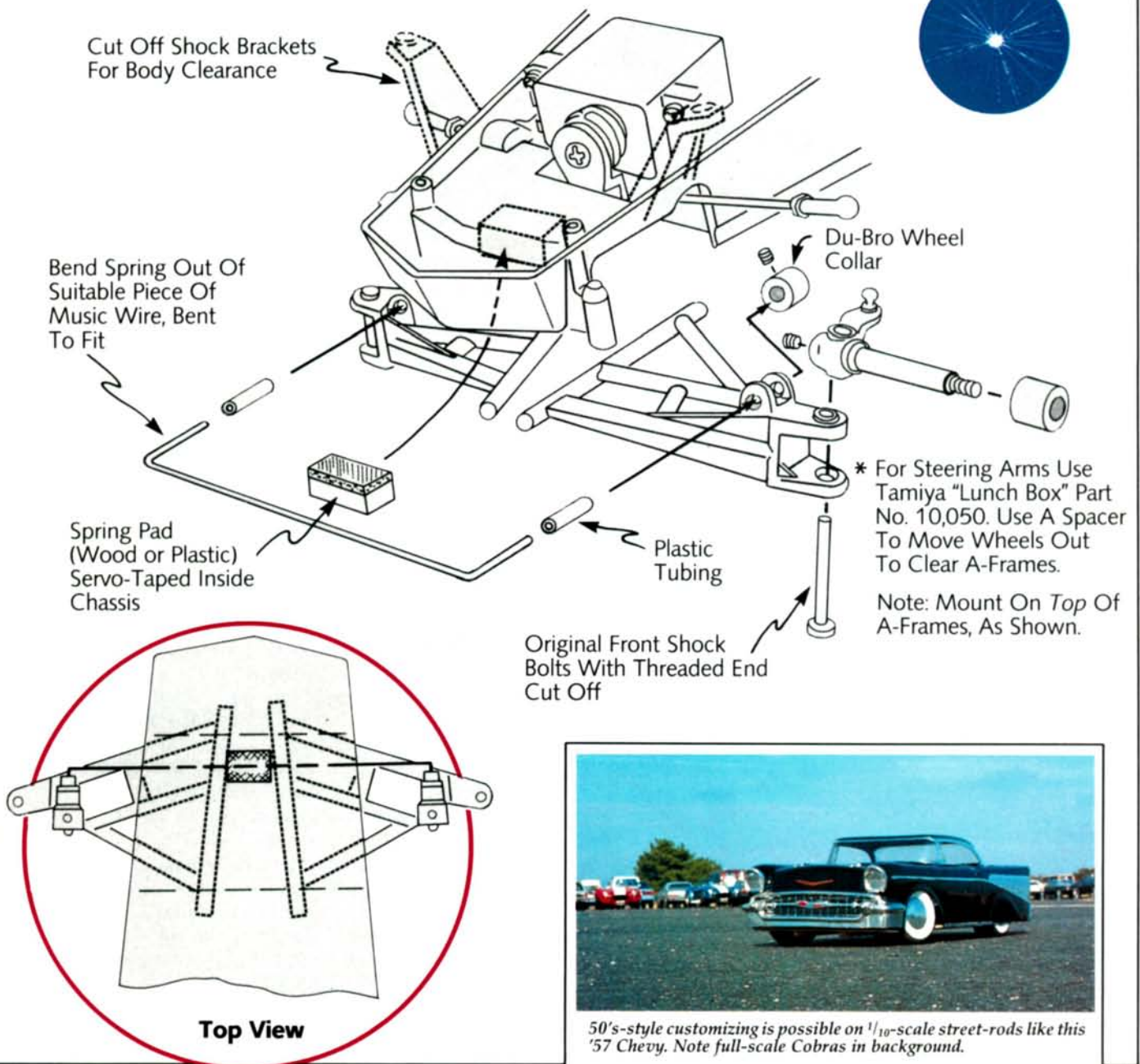
Using one of the current crop of excellent aftermarket Lexan bodies, some modelers build replicas of their full-scale cars, perfectly matching the paint and trim in every detail. Most are built as fun cars, and they're little more than fancy bodies dropped onto existing off-road chassis. A set of pavement tires on

chrome wheels completes the transition and allows quick re-configuration into a Sunday afternoon off-road racer. The usual motor and gearing combinations give a performance and response that is lively enough for the average parking lot. A few others are built entirely for the "run-watch-a-brung" drag-racing category, where there are no rules. You might get to look at what's under the hood, but don't count on believing what you see. That "stock black motor" could easily be a painted-over killer rewind, given some extra zap from



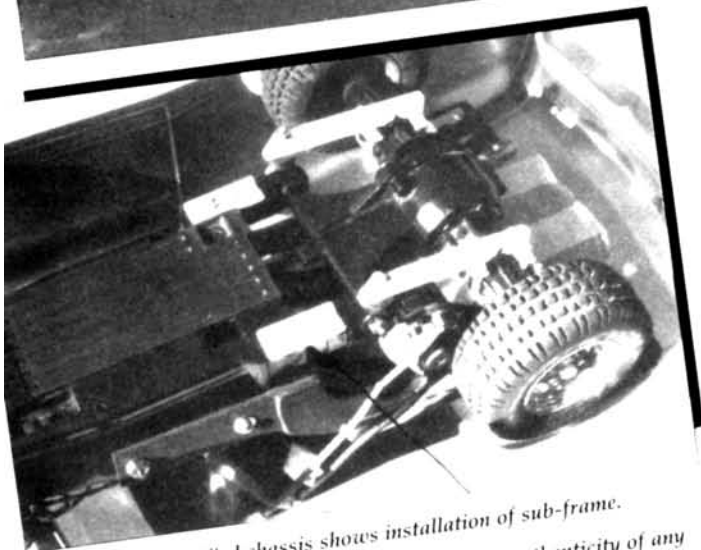
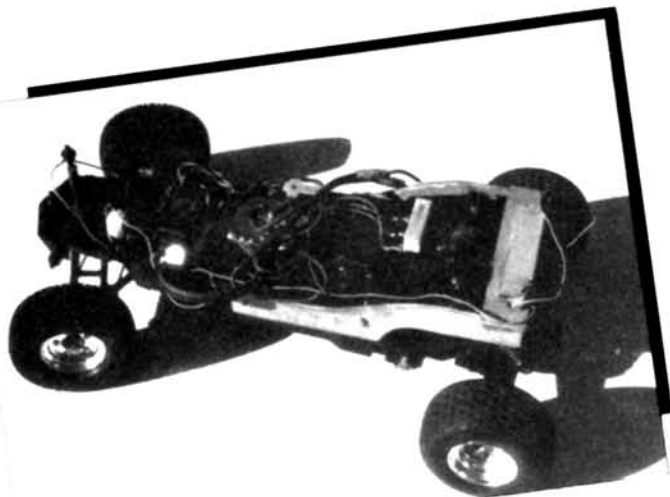
Sharp-dressed car digs TV dinner. Hornet chassis modified as in article. Paintwork a la ZZ Top.

GRASSHOPPER/HORNET CHASSIS "DROPPED" FRONT END WITH LEAF SPRING, FOR HOT RODS



50's-style customizing is possible on 1/10-scale street-rods like this '57 Chevy. Note full-scale Cobras in background.

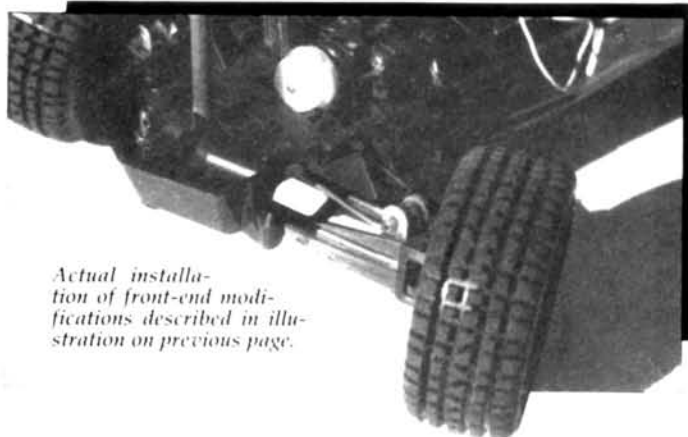
MIDNIGHT MADNESS



Top: Modified chassis shows installation of sub-frame.

Middle: Enameled jewelry pins add to the authenticity of any street runner.

Bottom: No self-respecting street machine would be caught at the light without traction bars. Prevents wheel-hop with hotter winds. Chassis extenders stretch wheelbase to match body.



Actual installation of front-end modifications described in illustration on previous page.

some additional, hidden sub-Cs. Driven by drag racers with finely honed starting-line techniques, they'll be happy to blow your doors off in a money run.

What does it take to build a street machine? If you have any kind of R/C car, with a little imagination you can probably turn it into a respectable boulevard blaster. For less than \$20, you can get a sharp-looking muscle-car body that will completely hide your off-road chassis. Bolt on a set of inexpensive street wheels and tires, and you're ready for some serious cruisin'. A set of stiffer shocks and a little suspension-tweaking will produce a car that's a real trip to drive, and you can always go ahead and soup it up if you want to do some drag racing.

Many modelers go to a lot of trouble to get full-size realism on a 1/10-scale street machine. Doing prototypical paint jobs using factory colors is one method, and particular attention is paid to the trim items, such as racing stripes and graphics. Stock-looking chrome trim, e.g., bumpers, rocker-panel moldings, window trim, light bezels and grilles are easily made with the chrome-foil tape that's found in auto-parts stores. Some people even install working lights so that their cars are easier to follow at night. As many of these "daily drivers" approach concourse quality, attention to such details helps to create a standout model.

Prominent features on performance cars are the emblems announcing engine type and model designation. In the past, any street machine worth its salt had bold graphics to tell you it was a Super Sport, Road Runner, or Cobra Jet, and it had numbers to tell you what you were up against—a 440+6, SS 396, Ram Air IV and so on. These graphics and numbers may be quickly and easily duplicated with the small enameled pins that are available at auto shows or by mail order. These finely detailed, color-enameled pins are available in just about any emblem or marking. Although designed as jewelry items, their small size and realistic appearance makes many of them perfect for use on model cars. Simply drill a small hole in the right place, stick the pin through and snap on the retainer at the back. Presto! Instant supercar!

Replicating traditional hot-rods is more challenging, as many of the older-style bodies had narrow hoods that won't fit over the shock towers on an off-road chassis. You can modify the front suspension to fit, but with this setup, conversion back to an off-road car is more difficult. If you do a lot of off-road racing with a Grasshopper or Hornet, you've probably broken off a front shock mount. Don't discard the old chassis when you get a replacement! If you

(Continued on page 95)

Troubleshooting

by FRED MURPHY

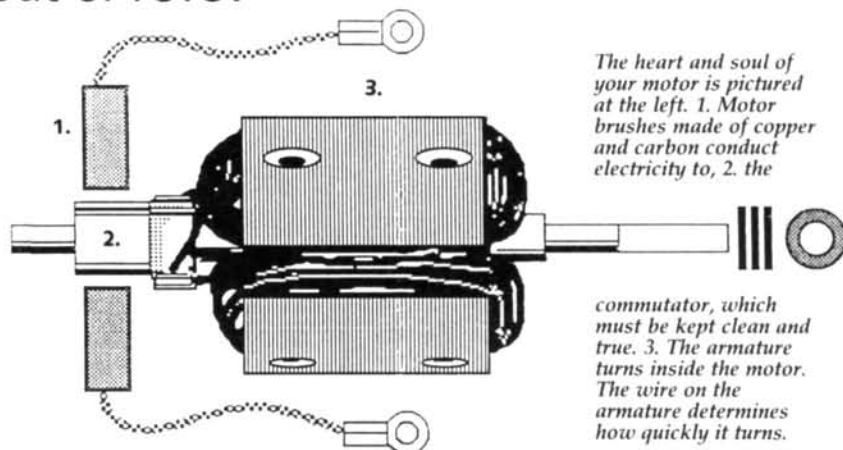
Running out of revs?

HAVING RECEIVED inquiries about electric motors, I'll give you some insight into a motor's basic elements. With the help of the skilled technical staff at Trinity Products*, I'll tell you how a motor manufacturer brings new life to a motor that's "running out of revs."

The following information really pertains only to modified motors, because once the can on a stock motor has been opened, it's technically no longer legal at most race tracks. Also, having a stock motor rebuilt would probably be more expensive than replacing it with a new one.

While today's motors run faster than ever, they also generate more heat. Even though you frequently clean the motor and replace the brushes, your motor will eventually lose its peak performance. This is due to the high heat and the centrifugal force that the armature has to endure. These also act on the commutator and result in a loss of trueness. When this happens, the brushes no longer run smoothly on the commutator. The armature also goes out of balance, and this causes vibrations and a loss of rpm. The solution is to have the motor rebuilt. Companies like Trinity offer this service, and this is what they do when a motor needs help:

When a motor arrives at the Trinity plant, the staff first disassembles it to check its overall condition. They make sure that there are no hidden problems that a standard rebuilding won't cure. All the components are ultrasonically cleaned to remove dirt and to completely clean the ball bearings. The armature is then dynamically re-balanced to eliminate the vibrations that occur at high speeds. The commutator is re-cut with a diamond tool



The heart and soul of your motor is pictured at the left. 1. Motor brushes made of copper and carbon conduct electricity to, 2. the

commutator, which must be kept clean and true. 3. The armature turns inside the motor. The wire on the armature determines how quickly it turns.

bit to a run of .0002 inch. This ensures a perfectly true track for the brushes to ride on.

The magnets are then "zapped" to maximum capacity on an Indiana General Capacitive Discharge Magnetizer, which is the strongest unit of this type in the industry. Following this, the motor is re-assembled to "like-new" specifications using new motor brushes and a set of high-temperature motor springs to ensure faster, longer running and to make the motor as dependable as possible.

When the motor is completely assembled, it's broken in and the timing is then set for the most horsepower at the lowest amp draw. The endbell is then taped so that it can't move while the motor is running, and this ensures that optimum settings are held. All motors are then dyno-tested and returned to you with an rpm and amp draw reading.

The procedure may *sound* simple, but without the use of high-tech rebuilding equipment, your motor will never run "like new" again.

In addition to giving information on rebuilding an electric motor, Trinity provided helpful definitions of some basic terms relating to motors.

- **Amp draw:** This is the amount of current that the motor draws. The more

amps a motor draws, the more rpm it produces, but it shortens battery life. The ideal motor has ultra-high rpm with low amp draw, so extending the life of the battery and giving you a cooler, longer-lasting motor.

- **Armature:** This is the part that turns inside the motor. The wire on the armature determines how quickly it turns. The thicker the wire, the more quickly it turns.

- **Break-in:** This is the process of running the motor at a low voltage with no load on it, and it's done to break in a new pair of motor brushes. During break-in, the sharp edges wear off the brushes and they shape themselves to the commutator. In this way, they're prevented from arcing and allowed to make good electrical contact.

- **Brushes:** Brushes are made of copper and carbon, and they conduct electricity to the commutator. As they're soft, they don't dig grooves into the commutator, but they do wear very rapidly. Brushes should be changed every couple of runs.

- **Can:** This is the metal housing containing the armature. It contains two magnets and the bushing or ball bearing that the armature shaft rides in.

- **Centrifugal force:** This is the force that works on all turning things. It's the same force that makes you lean to the outside



of a turn when you're driving your car. As the armature spins at high rpm, centrifugal force on the armature causes the commutator to become distorted (causing loss of good electrical contact between the commutator and the brush), and it shifts the wires (causing high-speed vibrations).

• **Commutator:** This is made of soft copper. The commutator conducts electricity from the brush to the motor windings. The commutator should be kept spotlessly clean and perfectly true (cylindrical). The motor brushes will eventually wear a groove in the commutator. This can only be cured by having the commutator "re-trued" by a motor rebuilding service.

• **Dyno-tested:** When a motor is "dynoed" or dyno-tested, it's run on precise test equipment that measures rpm, torque, volts and amps. This is the only way in which the timing on the endbell can be set and the right choice of brushes and springs for a particular motor can be made.

• **Endbell:** This is the plastic or aluminum housing that holds the brushes and the ball bearing or bushing that the armature shaft turns in.

• **Timing:** When you rotate the endbell on a modified motor, the relationship between the brushes and the magnets is changed. When this happens, you can increase rpm (advance timing), or decrease rpm (retard timing). Advancing the timing also increases the amp draw and isn't recommended.

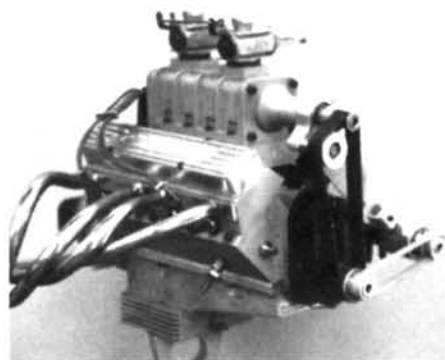
I hope that you'll find this information as interesting and useful as I did. The more we know, the more we enjoy our sport. Thanks, Trinity, for helping. **GOOD LUCK AND HAPPY MOTORING!!**

**Here is the address of the company featured in this article:*

Trinity Products, 1901 E. Linden Ave. #20, Linden, NJ 07036. ■

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ST. MACHINES

(Continued from page 39)

flames were dry, the rest of the body was sprayed black, and the job was pretty much complete—at least, the painting

portion was complete! Check out Phil Sroka's "Airbrushing Flames" article in this issue for an in-depth look at the technique *he* uses.

The GT-110 is a clear durable .040 Lexan Porsche 962-style body that lasts race after race. Designed for all 1/10 scale, 2-wheel drive, on and off road chassis. Features include headlight buckets which can be made operable. Price \$18.95.

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One of the most difficult parts of finishing scale bodies like the Merc, Chevelles, Camaros and similar "real" cars (specifically those with chrome trim and bumpers) is simulating that chrome appearance. Paints simply don't cut it, especially since we're painting from the inside; the silver goes grey-looking—nothing like what it *should* look like. Even when painted from the outside, it still looks like paint. I have a solution! Your local hobby shop has a material called Trim MonoKote; it's made by Top Flite Models*, is self-adhesive and comes in a variety of colors. The one used here is called "Chrome" and it works great. It's a very thin Mylar that you cut slightly oversize, remove the backing and position on the body. Press it firmly into place, and trim to final size with a very sharp hobby knife. Be sure it's exactly where you want it, because once it's stuck, it's almost impossible to move it without tearing it. Practice with some scrap pieces first, so that you become comfortable with it. The window frames and tail-light frames, bumpers and side trim on the Merc were done this way, and it really looks super. I'll be giving you a whole "How To" on

(Continued on page 70)

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Fred Murphy, R/C Car Action Magazine

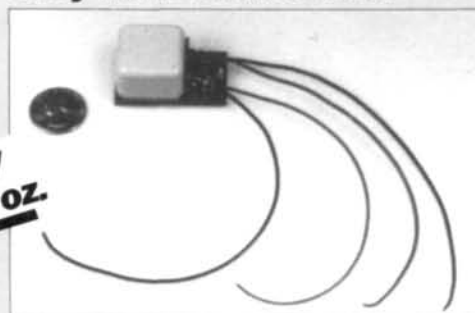
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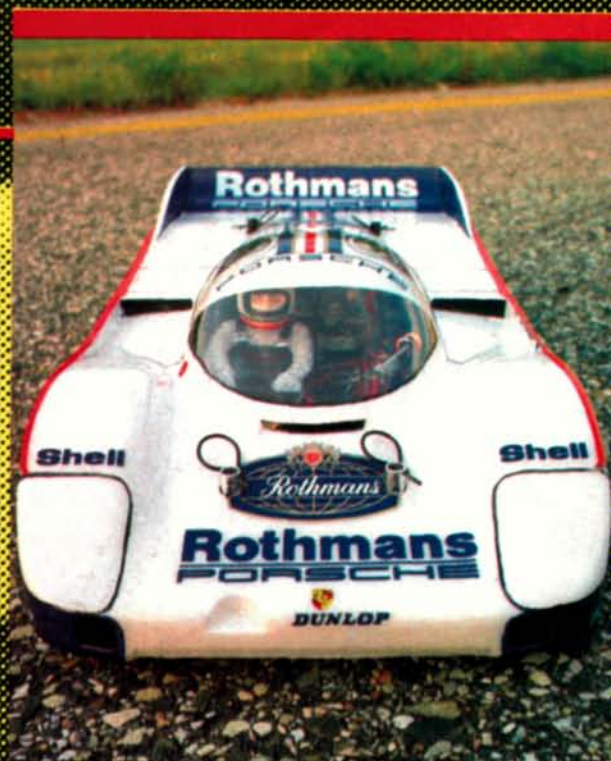
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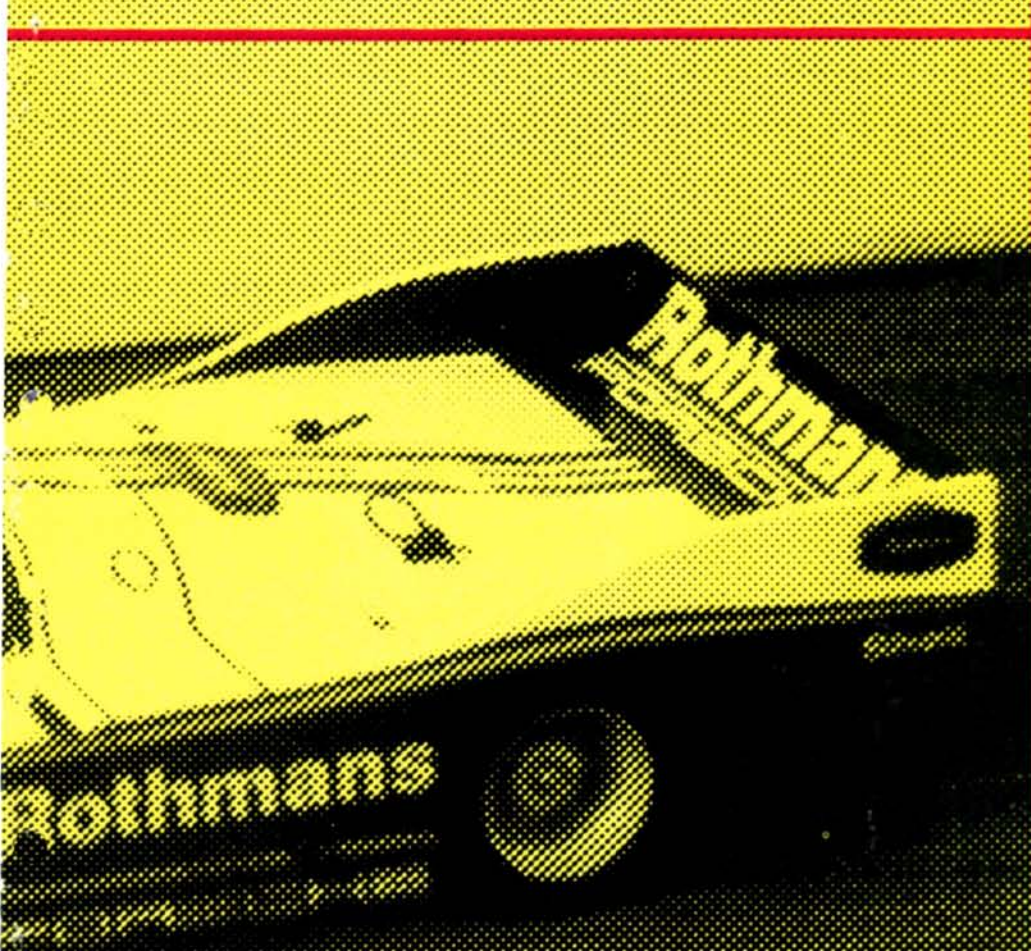
by TAI SUGAHARA

THE PORSCHE 956 has beaten the best cars in the world at such places as LeMans, Sebring and Daytona. This car was designed in Germany, the land of the autobahn, where speed limits are determined by courage, and not by statute. Tamiya's* top 1/12-scale racer is the Porsche 956 Racing Master Mk 5. The MRC/Tamiya Porsche 956 could become as dominant as its full-size namesake, as Tamiya has done the research and development necessary

to meet the competition on the track.

The Porsche 956 is well engineered, and the clear polycarbonate body is an excellent replica of the full-size Porsche.

The car features an independently sprung front end, and the rear suspension has slots cut into the chassis. (These allow the motor/axle pod to flex.) A stabilizer connects the rear end to the raised radio tray. The stabilizer has an adjustable spring and is dampened by sliding through an O-ring.



You can change the pivot point of the stabilizer on the radio tray. Moving the pivot forward increases understeer, and moving it rearward induces oversteer. This single adjustment will dial in your handling very quickly.

Tamiya includes eight ball bearings in the kit. The wheels and tires are very light, and the chassis and raised radio tray are made of 1.5mm fiberglass.

CONSTRUCTION:

Apart from a screwdriver, everything you need to assemble the car is included. The 14-page manual has step-by-step illustrations, so the Porsche 956 went together easily. The rheostat and wiper arm are prewired, and there's an on/off switch for



your receiver. Be sure to install the switch so that the "on" position is towards the front of the car; this will keep the switch from turning itself off when you hit a wall hard.

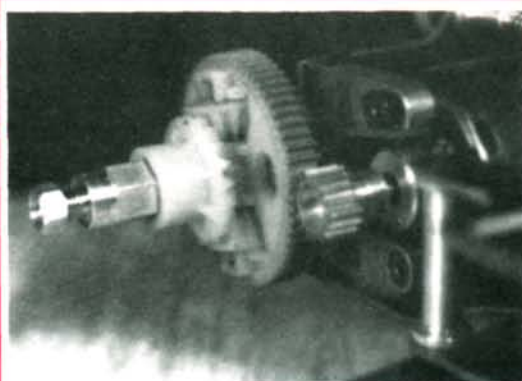
After using the ball-type differential found on most 1/12-scale racers, the Porsche 956 differential seems complex, but it goes together easily. The servo saver was one of the more difficult parts

Even moving the stabilizer pivot all the way forward didn't correct it, although it *did* help a little.

Before the second day of racing, I replaced the stiff rear stabilizer spring with an old ball-point-pen spring.

This soft spring allowed the rear end to flex more freely. The stiff spring was probably designed for the heavier and faster 6-cell racers.

With the new spring in place, the car was fully controllable. The differential gave quick, straight, line acceleration and smooth cornering, but the teeth on the spur gear seemed a little brittle. The



Although most of the competitive on-road racers use a ball differential, the 956 holds its own with a bevel-gear differential.

national level, all the Porsche 956 needs is a qualified driver. On the local level, the 956 allows a less experienced driver to race a stock car that's the equal of the super trick cars of the top drivers.



By using a softer spring from a ball-point pen on the rear damper, it's possible to race the 956 with 4 cells.

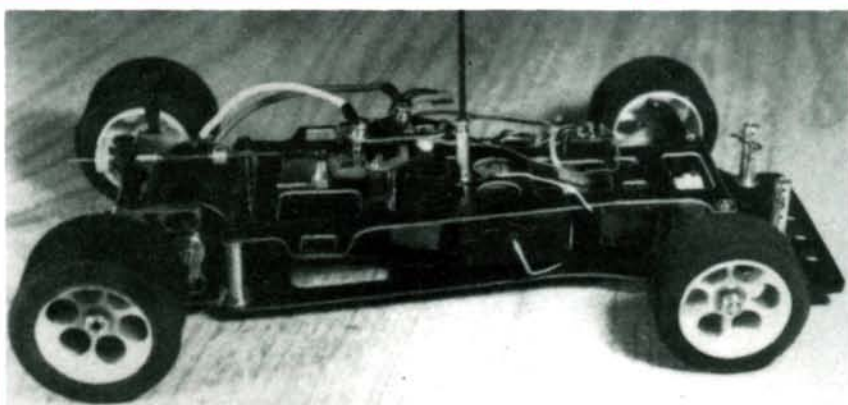


Use of the variable resistor speed control allows for smooth transition off the starting line without the expense of an electronic speed control.

to assemble, because it can be built to fit at least five different servos.

PERFORMANCE: Using the Porsche 956 for 4-cell indoor racing led to two problems:

First, the wiring to the radio switch had to be changed to bypass the 6-cell dropping diode; second (and this was harder to diagnose), the 956 had an uncontrollable oversteer.



As with most of the competitive on-road racers, the 956 has a simple, lightweight chassis for top speeds.

RS-540 Black Endurance Motor is very fast and the stock tires worked well on carpeting.

To be competitive on the

*Here is the address of the company mentioned in this article:

MRC/Tamiya,
2500 Woodbridge
Ave., Edison, NJ
08817. ■

ST. MACHINES

(Continued from page 62)

this material in an upcoming *RCCA*.

This was a fun project; one that got the ol' Hornet boogiein' again, instead of

collecting dust and being unappreciated. It runs great with the new Revtech motivation and looks right at home with all the other street iron that's becoming so

popular. All I need now is a 1/10-scale drive-in, a chick in a felt "poodle" skirt and some cat in a lead sled who wants to run for pink slips. Later, man, and remember, flatheads rule!!

*Here are the addresses of the companies mentioned in this article:

Parma International Inc., 13927 Progress Pkwy., North Royalton, OH 44133.

Revtech R/C Products, 9525/B Cozycroft Ave., Chatsworth, CA 91311.

Pro Line USA, P.O. Box 456, Beaumont, CA 92223.

Top Flite Models, 2635 S. Washash Ave., Chicago, IL 60616.

KYOSHO BURNS

(Continued from page 47)

The shocks were then put aside, and both the front and rear gearboxes were assembled. The shocks were then attached to their respective suspension arms, and the entire assemblies were attached to the aluminum chassis.

Skipping through some of the minor work, we get to the engine installation. This is the area that is most likely to lose a fastener due to vibration. Included in the kit is a small tube of screw cement, but I

(Continued on page 84)



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A D V A N C E

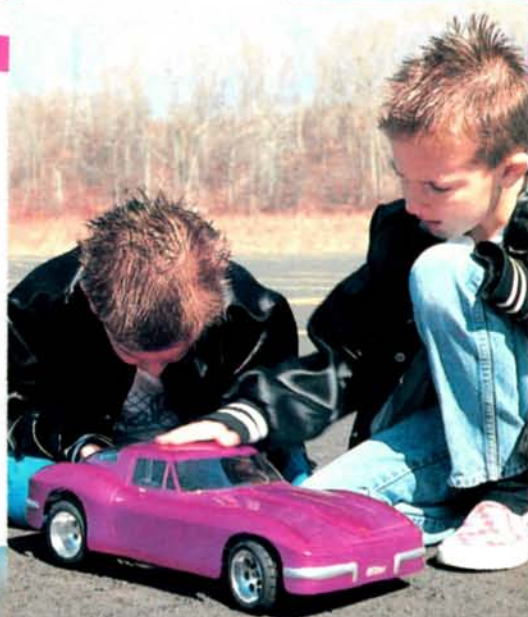
O N E

T E N T H

S C A L E

STREET ROD

*Tomorrow's
street warriors
admiring
yesterday's
street machine.*



Track Report

by T.J. LYN

CUSTOM ORDER YOUR OWN

Photos by T.J. Lyn.

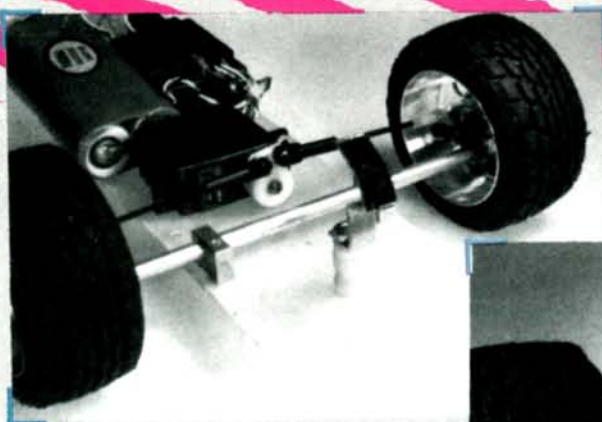


*The '63 Vette kit from Advance,
waiting for a driver.*



MANY OF THE now-legendary street-rods were born in the '60s. On Saturday nights, the parking lots of drive-in restaurants were packed with muscle cars. Major manufacturers were making big-block performance machines that could run the quarter in under 12 seconds and be driven from the track to the local drive-in, where you'd pick up shakes and burgers after the races. One of these performers was the '63 split-window Vette, and this can now be yours as a 1/10-scale R/C street-rod.

The Advance Pro-Stock front-axle assembly makes a great street unit. Note the custom front body mount with Velcro.



The base for the '63 'Vette is the Pro Stock Advance Dragin kit from Advance Engineering*. Advance offers many body choices for this kit, and the '63 split-window Corvette is one of them. The Advance Dragin is a simple, straightforward drag car that, with a basic body change, will be one of the hottest street-rod you'll ever build.

The car's rear comprises two aluminum pillow-blocks that house the rear axle and the motor. Mounted across the blocks is a chassis stiffener plate that also acts as the body-mount plate and is an ideal location for your speed control if you decide to add an electronic unit.

All this is secured to a flat, fiberglass chassis. The front axle is mounted on the forward side of the chassis using small pillow blocks. These allow you to adjust the car's castor setting, and this will help you to fine-tune the car's steering and straight-line running for the street drags you might get involved in.

The steering arms are mounted on a king-pin assembly along with a small spring that acts as a mild shock absorber during street use. The kit also contains additional fiberglass pieces that can be added to stiffen the chassis if need be. However, if you plan on drag racing, it's better not to add these but to let the chassis flex. Chassis flexibility will help the car's performance and weight transfer. To all this, add the set of 1½-inch front tires and wheels and the 2½-inch rear tires and wheels that come with the kit, and you'll have a mean street-rod chassis just waiting for some electrics to get it rolling.

The Advance street-rod has no differential; it's a direct-drive system that's designed to do only one thing—go fast! The car has full ball bearings, and power is provided by a set of Parma* matched Sanyo batteries. These are linked to a new Robart* HQ 505-series electronic throttle which unleashes a Trinity* 2007 drag motor. The Trinity 2007 drag motor is a 1/10-scale 3- to 4-minute motor that's pure power.

The Robart HQ 505 speed-control unit features state-of-the-art Hexfet technology with a built-in black anodized heat sink. The 505 has proportional braking and is very responsive at all throttle levels. This controller has a fully adjustable neutral and range, and weighs only 1.9 ounces. Internal components are optically isolated to improve reliability and



The Robart HQ 505 speed control will handle plenty of cells for this street-rod.

2½-inch rear tires and the Trinity Drag motor work well together.



ADVANCE ENGINEERING DRAGIN

Type	Street rod	DRIVE TRAIN:	
Scale	1/10	Type	(prim./sec.) ... Direct drive
DIMENSIONS:		Differential	None
Overall Length	17 inches	SUSPENSION:	
Width	9 inches	Type	(f/r) ... Spring-loaded kingpin
Height	5¾ inches	Dampening (f/r)	None
Wheelbase	10½ inches	TIRES:	
Front Track	8 inches	Front: Type	Grand Prix
Rear Track	8¾ inches		1½ inches
WEIGHT:		Rear: Type	Grand Prix
Gross			2½ inches
(w/rec. bat.) ...	3 lbs, 7 ozs.	ELECTRICS:	
Balance (front/rear)	—	Motor	None
BODY:		Speed Controller	None
Type	Parma '63 Vette	Bearing Type	Ball bearing
Material	Lexan	Battery Type Req.	6-cell
CHASSIS:			
Type	Flat plate		
Material	Fiberglass		

OPTIONS (as tested):

Trinity Drag Motor No. 2007, Robart 505 electronic matched Sanyo 6-cell pack from Parma.

COMMENTS:

The adaptability of the Dragin for street-rod conversion is very easy. The Advance aluminum wheels and Grand Prix tires give a street-rod added scale realism.

Overall gross weight for drag racing could have been lighter, but performance proved by the Trinity drag motor helps overcome the weight disadvantage.

require no fusing. This unit even enables you to run the car on a range of 6 to 35 volts. This means that if you need to put 18 to 20 cells in your car to destroy the competition, you can go right ahead. How's that for a speed control that even has a

(Continued on page 96)

U.S. Winter



THE RACE THAT ALMOST WASN'T!

by RICH HEMSTREET

IT'S VERY DIFFICULT to run 270 cars through three heats and an A Main in two days on an off-road track; when it rains for most of one day, it becomes impossible. The West Coast R/C Club of Tampa, FL, again hosted the ROAR 1/10-Scale Off-Road U.S. Winter Championships. Last year's event went off without a hitch, but this year was different.

Many drivers were able to practice on Friday, but, as frequently happens in off-road racing, the track wasn't groomed often enough for the practice to help the drivers much. Saturday morning was cold and wet. The organizers knew that the track had to be ready for racing at 1:30 p.m. to get a single round of qualifying in on Saturday, but it wasn't to be. With their backs to the wall, the West Coast R/C Club arranged to have the park opened at 4 a.m. on Sunday, and the first of two qualifiers started at 7 a.m. This meant that the Mains would take place at night under the lights.

With only two qualifiers, the pressure was on the racers to put in a good run. A bad break here or a bobble there could cost you a shot at the A Main, and, in fact, that's just what happened. Joel Johnson, the reigning 2WD World Champion, sat out the 2WD A Main, while Jim Dieter, the '87 ROAR 4WD National Champ, missed the 4WD A Main.

Many racers faced numerous technical difficulties, and the bad weather added to their problems.

There weren't a lot of new cars at the Winter Championships. Team Losi* showed up with six Yokomo* C4 4WD cars, which should be on the



market by the time you read this. The final version of the Losi JRX-2 2WD racer was also there, and this car should be in production now.

Team Pit Stop* has a new chain-drive gearbox for the RC 10. This is a trick unit that includes a

ROAR 2nd Annual 1/10-Scale Off-Road U.S. Winter Championships

4WD MODIFIED

Fin.	Qual.	Driver	Chassis	Motor	Spd. Contr.	Tires Front/Rear
1	1	Butch Kloeber	Yokomo C4	Reedy	Novak	Schum/Yokomo
2	2	Cliff Lett	Schumacher	Reedy	Novak	Schum/Schum
3	7	Ron Rosetti	Yokomo C4	Revolution	Novak	Yokomo/Yokomo
4	4	Jamie Booth	Schumacher	Reedy	Demon	Schum/Schum
5	8	Jack Johnson	Yokomo C4	Revolution	Novak	Yokomo/Yokomo
6	6	Joel Johnson	Optima-Mid	Trinity	Tekin	Kyosho/Schum
7	5	Gary Kyes	Yokomo C4	Revolution	Novak	Yokomo/Yokomo
8	9	Eric Soderquist	Twister	Twister	Novak	Schum/Schum
9	3	Gil Losi Jr.	Yokomo C4	Revolution	Novak	Yokomo/Yokomo
10	10	Jay Halsey	Yokomo C4	Reedy	Novak	Yokomo/Yokomo

2WD MODIFIED

Fin.	Qual.	Driver	Chassis	Motor	Spd. Contr.	Tires Front/Rear
1	2	Mike Burnette	Ultima	Trinity	Tekin	Schum/Schum
2	3	Ron Rosetti	JRX 2	Revolution	Novak	Schum/Yokomo
3	8	Darrin Stump	RC 10	Twister	Novak	Schum/Schum
4	1	Cliff Lett	RC 10	Reedy	Novak	CRP/Schum
5	9	Gil Losi Jr.	JRX 2	Revolution	Novak	Schum/Yokomo
6	5	Jay Halsey	RC 10	Reedy	Novak	CRP/Yokomo
7	10	Butch Kloeber	RC 10	Reedy	Airtronics	ProLine/Yokomo
8	6	Kris Moore	RC 10	Twister	Novak	CRP/Kyosho
9	4	Eric Soderquist	RC 10	Twister	Novak	CRP/Kyosho
10	7	Jamie Booth	RC 10	Reedy	Demon	Schum/Schum

2WD STOCK

Fin.	Qual.	Driver	Chassis	Motor	Spd. Contr.	Tires Front/Rear
1	9	Kenny Gillett	RC 10	Race Prep	Novak	ProLine/Schum
2	1	Bill Winn	Ultima/MIP	Trinity	Tekin	CRP/Schum
3	2	Ed Beeler	Pit Stop RC 10	Associated	Futaba	Schum/Schum
4	4	Edwin McTureous	Pit Stop RC 10	Associated	Novak	Schum/Schum
5	10	Junior Leverlock	RC 10	Revolution	Novak	Schum/Kyosho
6	3	Steve Valentino	Pit Stop RC 10	Twister	Novak	Schum/Schum
7	8	Dennis Gatto	RC 10	Twister	Novak	CRP/Schum
8	7	Keith Abott	RC 10	RevTech	Tekin	CRP/Schum
9	6	Ken Sibley	Rodent	Twister	CMW	Schum/Schum
DNS	5	Bill Blakeslee	N/A	N/A	N/A	N/A

ball-type differential. Cars using this gearbox qualified second, third and fourth in the 2WD Stock Class A Main.

The most popular tires at the Winter Championships were the Schumacher* Cat tires, followed closely in popularity by the new Yokomo Hot Laps tires.

In the 2WD Stock Class, Bill Winn, driving a Trinity*-powered Ultima with an MIP gearbox, took TQ honors. Ed Beeler was second fastest, driving his RC 10 with a Team Pit Stop gearbox and an Associated* stock motor.

In the 2WD Modified Class, Cliff Lett earned TQ honors driving a Reedy*-powered RC 10. Second place went to Mike

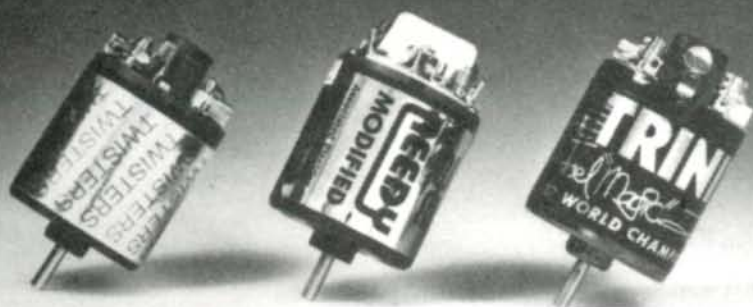
"...the pressure was on to put in a good run."

Burnette who used Trinity power in his Ultima. Ron Rosetti was third fastest with a JRX-2.

In the 4WD Class, Butch Kloeber was the top qualifier with a Reedy-powered Yokomo C4. Cliff Lett just missed sweeping the modified TQ honors; his Schumacher Cat was second fastest. Gil Losi Jr. was third fastest with a Revolution*-powered Yokomo C4.

Nine cars started the 2WD Stock A Main. Ken Gillett came from the rear of the pack to win with his RC 10, which was powered by a Race Prep* motor. Bill Winn took second place with his Ultima.

The 2WD Modified A Main



HOTTEST OFF-ROAD WINDS!

THE U.S. WINTER CHAMPIONSHIPS is the first major off-road race of the year. This race kicks off the '88 season, and who had the hottest motors?

The new Reedy motors made a clean sweep of the modified TQ honors, but the final results are what really count. In 2WD competition, Cliff Lett used a Reedy motor in his RC 10 to capture the top-qualifier position. In 4WD, Lett almost repeated his success as TQ with Reedy power, but Butch Kloeber beat him. (Kloeber's Yokomo was also Reedy-powered.) Three of the top four 4WD qualifiers were Reedy-powered (first, second and fourth places).

In the 2WD Modified Class, Trinity was first, Revolution second, and Twister third, with Reedy coming in fourth.

The Trinity drivers had more than their share of technical problems, so only one Trinity motor was in each A Main. Nevertheless, Mike Burnette still managed to capture the second-fastest qualifying time in the 2WD Modified A Main, using a 6-cell pack, while others were using 7-cells. Burnette went on to victory, driving his Trinity-powered Ultima. Burnette's win for Trinity prevented the Reedy forces from making a clean sweep at the Winter Championships.

While the Team Losi Revolution motors didn't capture a TQ or an A-Main win, their presence was felt. With Ron Rosetti driving a Revolution-powered JRX-2 in the 2WD A Main, Burnette couldn't let up for a minute. Rosetti finished second in the 2WD Class, after qualifying as third fastest.

Gil Losi Jr. was the third-fastest qualifier in the 4WD Class with his Revolution-powered Yokomo. The four Revolution motors in the 4WD A Main equalled Reedy's numbers. Ron Rosetti battled for second place throughout the Main, only to miss out by a split second. Rosetti's Revolution finished third, so preventing Reedy from capturing the top three spots in 2WD Modified.

Against tough competition, Reedy, Trinity and Revolution were the top modified motors at the U.S. Off-Road Winter Championships.

The Stock Class at the Winter Championships didn't use hand-out motors. Each driver furnished his own ROAR-legal stock motor.

A Race Prep motor was used by Kenny Gillett to win the Stock A Main. Even though Gillett started at the rear of the pack, his Race Prep got him to the finish line first.

Bill Winn used a Trinity motor to capture the stock TQ honors, and he went on to finish second in the A Main with his Trinity-powered Ultima.

Ed Beeler used an Associated stock motor to set the second-fastest time. In the Main, Beeler finished third overall. Another Associated stock motor finished fourth.

If you're looking for some horsepower, check out the motors that the winners of the Winter Championships used. If you can handle the power, you just might dominate your local track this summer!



The "Mouth of the North," John Thawley, showed up in Tampa and interviewed Mike Brunette, the 2WD Modified winner.



Mike Reedy had the job of tearing down the stock motors, but he didn't find any cheating.

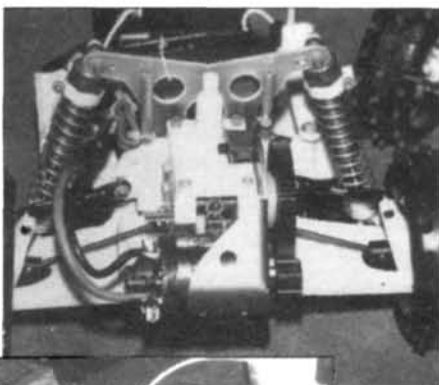
Ron Rosetti finished second in the 2WD A Main and third in the 4WD A Main.



Butch Kloeber was the 4WD TQ and ran away with the Main.

was quite a battle. Mike Burnette held the lead during much of the race, but he didn't run away with it. Darrin Stump and Ron Rosetti fought closely for second place. Burnette won, driving his Trinity-powered Ultima. Rosetti finally captured second place with his Revolution-powered JRX-2. After starting eighth, Stump finished third. He

The new Team Pit Stop chain-drive gearbox worked well on the RC 10.



The Yokomo C4 put on an impressive show in Tampa.



Schumacher Cats were in the hunt for the 4WD A Main.

drove an RC 10 with a Twister motor.

All six Yokomo C4 cars made it into the 4WD A Main. They were joined by two Schumacher Cats, one Kyosho* Mid-Optima and one "Twistermobile." At the sound of the starter's horn, Butch Kloeber was off and running. Kloeber showed that he was TQ for good reason—he was consistently faster than anybody else! Once again, Ron Rosetti fought for second place, this time against Cliff Lett and Jamie Booth. Kloeber won easily with his Yokomo C4, and Lett's Schumacher Cat beat Rosetti's Yokomo C4 by about 2 feet, passing him just before going under the scoring bridge for the last time. Booth finished fourth with his Reedy-powered Schumacher Cat.

(Continued on page 119)

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KYOSHO BURNS

(Continued from page 70)

prefer the Loctite* 242 compound for applications such as this where a good bond is a must.

When the engine has been installed, the exhaust system is attached to the engine's manifold. The exhaust manifold for the O.S. engines is included in the kit; for other applications, check with Great Planes* or a local hobby dealer. The stock plumbing for the Burns consists of a molded rubber tube that's attached at the middle to a metal muffler. Without going into a great deal of 2-stroke theory, it's my opinion that a car of this caliber and in this price range should be using a more effective exhaust system, so I used an optional Kyosho tuned exhaust in place of the stock equipment. This exhaust pipe is attached to the chassis by using an airplane pipe holder that is available from most well-equipped hobby shops.

When the radio system has been installed, the tires and wheels should be put on. The wheels for the Burns employ one-piece technology and still allow a perfect mount. Each wheel is grooved on both sides to allow the tire to be slipped on and then glued, and this provides a super-strong bond that won't loosen and a tire that is guaranteed to mount true every time. The last step is painting the body, and then it's time to put the Burns to the test!

PERFORMANCE: It's been a while since I built a gas-powered car, and I'd forgotten what it was like to put one of these nitro-burners through its paces.

For the first run, I fired the Burns in my garage, let the engine warm up and headed for the yard to make sure that all systems were "go." For the initial starting, some have recommended 3½ turns out on the needle valve. If you're lucky enough to have a sufficiently strong glow-plug battery, it will burn off the excess fuel, but, for the most part, I find that this setting is too rich. The setting I found most effective is 2½ turns out on the needle valve. That means screwing-in the needle valve all the way and turning it back out 2½ turns. The engine may be able to rev up while you hold the car in the air (don't let the engine reach high rpm while it's in the air, as it may be permanently damaged), but the *real* test comes when it's on the ground.

The first attempt at squeezing the throttle ended with a stall, because the engine was running too rich. With a leaner needle setting, the second attempt was a success, but the Burns was still slow

(Continued on page 92)

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by RICH URAVITCH

TAMIYA

An engineering feat in 1/12-scale.

TOYOTA CELICA Gr. B

RALLY SPECIAL



THE THOROUGHbred STABLE of Tamiya has yielded yet another 1/12-scale 4WD winner that's well suited to either on-or off-road operation. This time, it's the MRC/Tamiya* Toyota Celica Gr. B Rally Special, which is very similar to their Porsche 959, but with some minor mods and refinements. To make it easier for the racer to choose the type of racing he'd like to do with this car, Tamiya includes both on-and off-road tires and wheels, plus a choice of gear sets. The recommended off-road combo teams a 16-tooth pinion with a 41-tooth drive, while asphalt scorchers like me will opt for the 18/40 match. In either case, the decision must be made during

build-up, as major disassembly will be required to effect the change later.

The kit is a marvelous blend of design engineering, precision fabrication and efficient packaging. The injection-molded parts are beautifully done and fit together well (a fact which you'll appreciate over and over when you start assembling your kit). The 32-page manual will guide you accurately through each step, but be certain to read all steps carefully in addition to looking at the appropriate illustrations. There's a lot of hardware (and I mean a lot!), and each piece has a definite location, so be sure to use the "Parts Used In This Step" key to avoid having to undo a step because you used the wrong grip-length



Above: Toyota rockets down the blacktop. Note the high body stance, which helps when off-roading also.

Below: The only view most of the Celica's competition may see. Body is nicely detailed.





Ready-to-go Celica with three-tone, airbrush-applied paint job and appropriate "sponsor" logos.

TAMIYA TOYOTA CELICA

Type On/Off-Road 4WD
Scale 1/12

DIMENSIONS:

Overall Length 13¹/₁₆ inches
Width 6⁷/₈ inches
Height 5¹/₈ inches
Wheelbase 8¹/₈ inches
Front Track 5⁵/₁₆ inches
Rear Track 5⁵/₁₆ inches

BODY:

Type Scale two-door notchback
Material Lexan (polycarbonate)

CHASSIS:

Type Semi-tub
Material High-impact, injection-molded

DRIVE TRAIN:

Type
(prim./sec.) 4-wheel, single shaft

SUSPENSION:

Type (front/rear) ... Unequal A-arm, torsion-bar assist (front)

Dampening

(front/rear) Coil-over oil-filled shocks

TIRES (on-road):

Front: Type Pneumatic slicks
Dim. 2⁷/₁₆ x 1 inches

Rear: Type Pneumatic slicks
Dim. 2⁷/₁₆ x 1 inches

ELECTRICS:

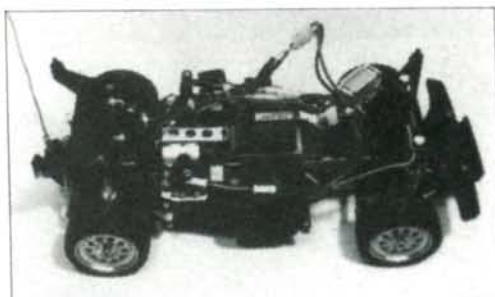
Motor Technigold
Speed Controller Stock, kit supplied, non-electronic

Bearing Type

Battery Type Required ... 7.2V, 6-cell, minimum

COMMENTS:

- Extremely well engineered and manufactured.
- Assembly is tedious, but not difficult.
- Ride height is great for off-road, but cannot be lowered sufficiently for scale on-road appearance with "street" tires.

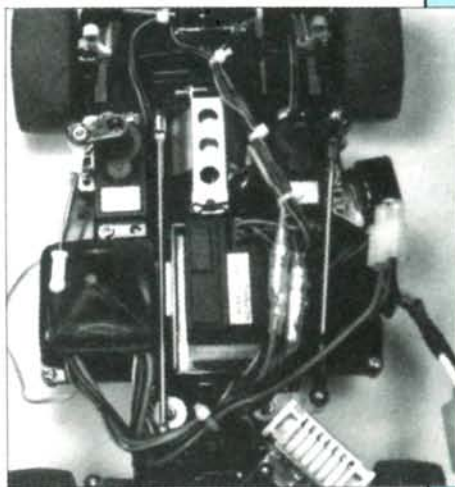


Chassis layout is purposeful and efficient. Mid motor balances car nicely.

screw, and the one you now have is too short! To hold the small parts while I was building, I used some disposable medicine cups (the kind used for cough medicine), each marked with the parts-bag number. This is much easier than having to fish through the bags each time.

Assembly of this sophisticated kit isn't complicated, but it does require concentration and 12 to 16 hours of your time. (This includes painting and drying time.) No special tools are required; a range of screwdrivers (common and Phillips), long-nose pliers, wire cutters, modeling knife and scissors should do it. The only material you'll need to provide is a CA adhesive for bonding the tires to the wheels. The brand I prefer is called Zap, and it's available at

(Continued on page 96)



Close-up reveals well thought-out design. Resistor heat shield, lower center; receiver in center, just to the right of the boot-protected speed controller.



"Phantom" view reveals innards. Trunk lid with spoiler is opaque-white polystyrene.



Navigator reluctantly advises a surprised driver of their position!

KYOSHO BURNS

(Continued from page 84)

getting off the line. This was an indication that the mid-range throttle was still a little too rich. Another half turn on the low-end

needle was just what the doctor ordered, as shown by the incredible acceleration as the Burns uprooted the grass in my yard. A couple more minutes of running were

enough to fine-tune the radio functions, and then I headed for the track.

With a full gallon of 20-percent-nitro fuel, I anchored for the day to do some serious testing. The first couple of tanks were spent getting used to the feel of the car, but from then on it was all business. The track is normally used for electric off-road cars, but it happens to be a sizeable track with a 300-foot oval and a large roadcourse in the middle. Under acceleration, the Burns was dragging its tail and giving a little oversteer. There's a little slop in the front end, and that caused it to waver a bit at the high speeds reached on an oval. This also contributed to the oversteer. To some extent, I was able to compensate for the oversteer by loosening the rear suspension and pushing up the wing one notch. This allowed the front to push enough to keep it under control. On the oval, the ride height was also lowered, but when it came to running off-road, it was back to full-suspension travel. The relatively small off-road course was a challenge for both me and the Burns. The tremendous power of the Burns made handling through the corners pretty tough, because fluctuation of the throttle would cause the power to pour on and a spin-out would result. After getting used to the sensitive throttle, I was able to turn some pretty impressive lap times. The Burns would soar easily over the jumps and the air time was minimal. Remember that time in the air is time wasted; you can make better time on the ground! To date, the only problem encountered was that the flywheel came loose from the crankshaft.

This car is one of the most sophisticated 1/8-scale off-road cars to hit the market in the States, and it shows a great deal of promise if 1/8-scale off-road racing becomes really popular. I, for one, will be the first on line. There are no batteries to charge, the cars reach speeds of over 40mph and I love the smell of burning nitro!

**Here are the addresses of the companies mentioned in this article:*

Kyosho; distributed by Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

Futaba Corp. of America, 555 W. Victoria St., Compton, CA 90220.

Loctite Corp., 4450 Cranwood Ct., Cleveland, OH 44128.

Great Planes Model Distributors; see above.

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MADNESS

(Continued from page 58)

neatly trim off the shock towers right down to the chassis, the '27 to '40 Ford bodies will fit perfectly. By making a simple leaf-spring from a piece of music wire (as shown in the drawing), you'll have a neat suspension setup, and a "dropped" front axle will give super pavement handling and a "California Rake" look to the car. Many of these rods have flames painted on them; not just the traditional yellow and red flames on black, but orange flames on bright green, or purple on silver. Try it! You'll like it!

For the "fat-fender" crowd with the '50s-style customs, there are a few great bodies available. These include the '49 Merc, the '40 Ford, the '41 Willys and the '57 Chevy. Just make sure that you mount them *low*, and don't trim out the back-wheel cut-outs (makes for neat fender skirts). Flat-white latex paint can be applied to the sidewalls of pavement tires for that "port-a-wall" wide whitewall effect. Latex paint is the only paint that will dry on rubber-type surfaces. The classic moon hubcaps can be made from the bottom of a beer or soda can. Scissors will cut the aluminum quite easily, and the metal may be left as it is or polished to a shine with metal polish.

As for souping up your rod, the basic rule is "Speed costs money." You have to decide how fast you want to go, and you must then be prepared to pay the price. There are dozens of high-performance motors that will make your street machine run as though it has a street hemi under the hood, and they're available in a broad price range. Bear in mind that a hot motor will probably necessitate the use of drag slicks for racing, and it might require suspension re-work, heavy-duty axles, or better gears.

Instead of spending big bucks, try some good old-fashioned hot-rodding tricks to make your car faster than the next one. Try lightening the chassis by drilling holes or cutting out areas that aren't essential to chassis strength. This type of re-work will probably limit the car to on-road use. Going to a 7-cell or an 8-cell battery pack will definitely boost performance, no matter what your type of motor. Even more cells could be used for scale 1/4-mile dragging, but give yourself plenty of shut-down room because of your extra weight and higher speeds.

Experiment with weight distribution to obtain maximum traction and straight acceleration. Wheelies are "cool," but you can't steer with the front tires off the



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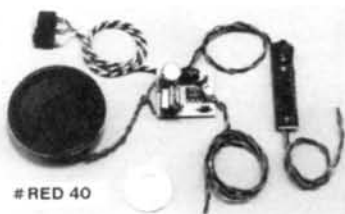
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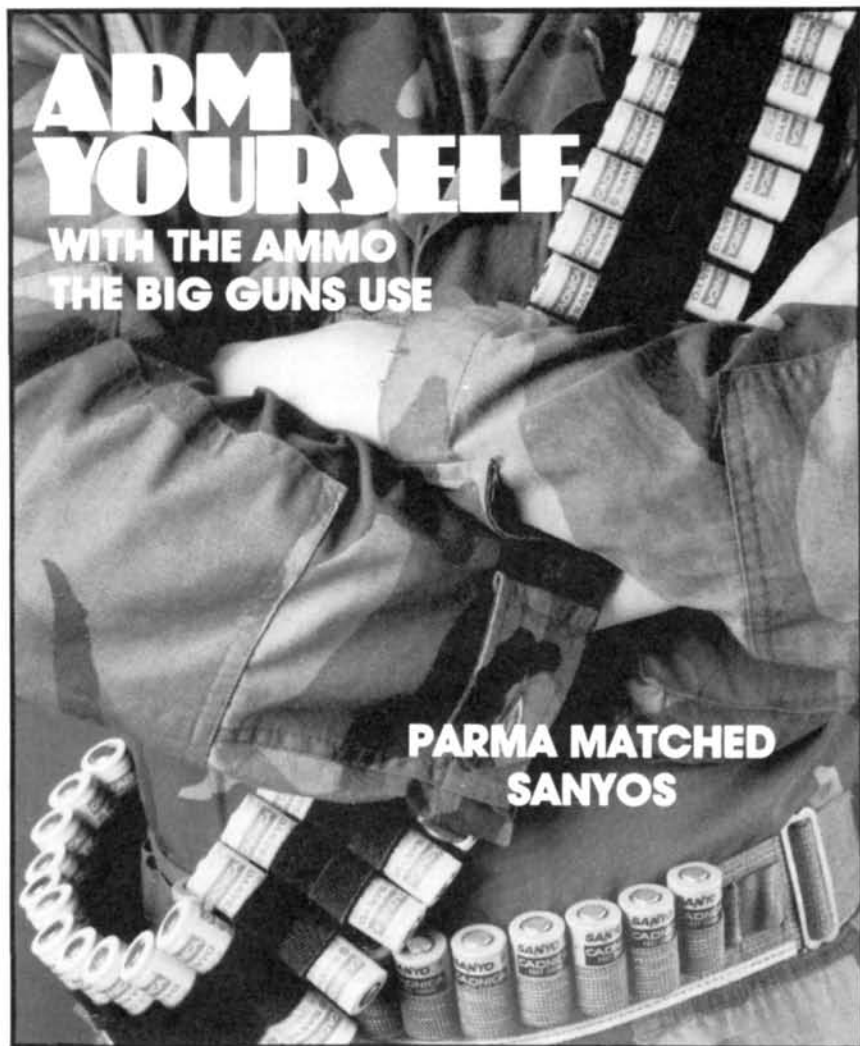
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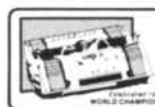


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ground, so use bars of appropriate weight distribution to keep the front end down. Practice your starting-line technique until you can concentrate absolutely on whatever system is used to start a race. Most drag races are won right on the starting line; a good holeshot can put a slower car far enough in front so that even a real animal machine will have trouble catching up if the driver is late starting.

Whichever way you decide to go, it's a lot of fun for the money, and it's sure to become more popular. With a few parts and some imagination, a worn-out or obsolete off-road car can be transformed into a real show-stopper, and you can have a drag race almost anywhere! ■

1/10 STREET ROD

(Continued from page 73)

limited lifetime warranty? Just one warning: If your radio system doesn't have BEC capabilities, be sure to add voltage-dropping diodes in line, so that you don't damage your radio receiver.

When the electrics are in place and ready to go, the Advance chassis is ready for painting. Pactra* makes a full range of colors that any street-rod fan would be proud to display, and I chose a '63 split-window-'Vette body paint in metallic burgundy with a base coat of metallic silver. After that, the street- and strip-machine was ready for action!

Whether it's for street, strip or just "for show," the days of the hot-rod can now be brought back to life in 1/10-scale radio-control, and you don't have to worry about how much gas that big block will burn!

*Here are the addresses of the companies mentioned in this article:

Advance Engineering, P.O. Box 766, Woodland Park, CO 80866.

Parma International Inc., 13927 Progress Pkwy., North Royalton, OH 44133.

Robert Manufacturing, 310 N. 5th St., St. Charles, IL 60174.

Trinity, 1901 E. Linden Ave. #20, Linden, NJ 07036.

Pactra (Plasti-Kote), 410 N. Michigan Ave., RM 1280, Chicago, IL 60611. ■

TOYOTA RALLY

(Continued from page 87)

most hobby shops or racetracks. The kit includes shock oil, switch lube and joint grease.

Power for the Celica comes from an RX-540Z Technigold motor which, right out of the box, is one powerful wind. I did make one change to ease motor installation though; I relocated the anti-rotation

(Continued on page 104)

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TOYOTA RALLY

(Continued from page 96)

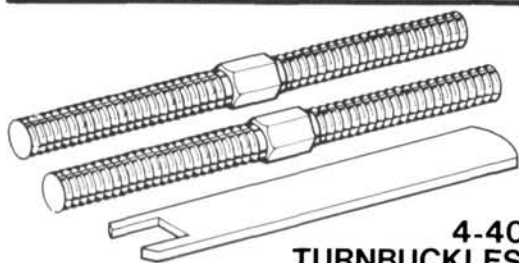
screw shown in Step 14 from the "4 o'clock" to the "8 o'clock" position. Using the illustrated position, I couldn't get the motor to "key" properly to the aft gearbox/suspension assembly. A single shaft-drive system is used to connect the driven rear differential to the front unit. I prefer this arrangement to the belt- or chain-drive methods, because there's never a need for adjustment or re-tensioning.

The radio I used in the Celica was the KO EX-7, which is available from Hobby Shack*. It's a wheel/trigger throttle system that uses dry batteries in both the transmitter and receiver/servo packages. The servos are pretty much a standard size and fit the Toyota chassis without modifications. Charlie Kenney has done a complete technical review on the system in the May '88 issue, so check it out if you're an IC/digital electronics fan. I like the radio because it fits my hand well and works as I want it to. I don't care to be any more technical than that!! The servo power is all you'll ever need during most racing and, if you properly mount the receiver and servos, the system should

(Continued on page 106)

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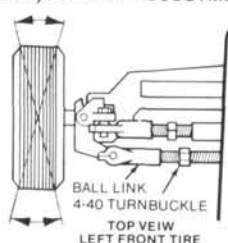


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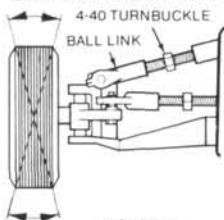
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TOYOTA RALLY

(Continued from page 104)

last you a good long while. In order to save some weight (and space), I equipped the EX-7 with a BEC (Battery Eliminator Circuit), as this has become the way to go. Some radios are supplied with this feature when you buy them.

This Toyota is really my kind of car because, although I enjoy hot-dogging with the off-road buggy-type vehicles, I find I still lean towards the on-road flat trackers, Grand National machines and boulevard cruisers (scale-type cars). It's for this reason that I really appreciated the high quality and detail of the polycarbonate body. What's the toughest part of trimming one of these bodies? The

wheel wells, right? Not to worry, dudes, the only trimming required here is straight line. The wells are pre-cut! Love it!

I prepared the body for paint by first masking all the "glass" areas to protect them from both scuffing and paint, and I then scuffed the inside of the body with grade 000 steel wool. This puts a little "tooth" in the surface and allows the paint to stick much better. The actual paint chosen for the finish was Testors enamels for plastic models. I've used it successfully before, so decided to try it again. All the painting was done with a HS831 Speedy airbrush, available from W.R. Brown*. This airbrush was a pleasure to use and it has some unique features. I'll be giving

you a complete story in a future issue of *RCCA*. After the paintwork was done, I added some sponsor decals from the extensive sheet provided, attached the body and was getting pretty close to running time.

After charging the 7.2V, 1,200mAh pack with a peak detection charger, my wife, Maribet, and I (you remember her from the Hornet Torture Test, don't you?) headed out to what we've now adopted as *our* asphalt test track: the site where I do my R/C flying. It was absolutely bitter cold and very windy, so none of my flying buddies were out, which gave us the whole runway to ourselves. We agreed

(Continued on page 112)

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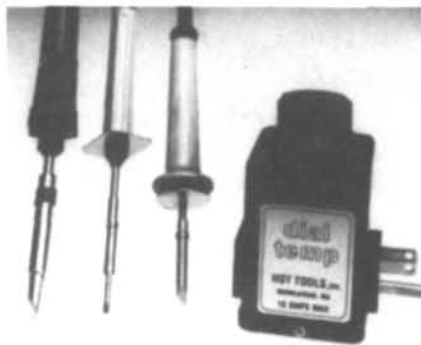
BOLINK

BoLink's new front adaptors allow different types of 1/10-scale cars to use the same front tires. There are two different adaptors or hubs. Adaptor A (BL-3420) is made to fit Tamiya and any other cars using 11mm-diameter front bushings or standard Tamiya ball bearings. Adaptor B (BL-3421) has a 5/16-inch hole that fits BoLink and R/C 10 front bearings. BoLink has new front wheels and tires to fit these hubs. They have the same bolt pattern as standard BoLink rears, and this allows the use of even wider tires. Both adaptors are offset, so they can be turned around to change the track width on the front of the car. The tires can also be changed without removing the bearings.



These new nylon battery holders from BoLink provide a solid battery mount, so that the only time your batteries will come out of your car is when you remove them. They are standard equipment on BoLink's new Eliminator 10 and 12, and they can be used on most cars, since they only move the batteries about 1/16 inch apart. They can also be used between two stick batteries in cars that have two 3-cell sticks.

For more information, contact BoLink R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245.



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JAGUAR MANIA!

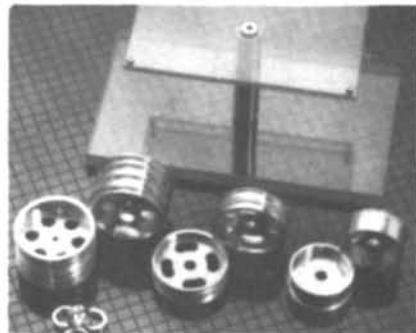
The biggest British invasion since the Beatles! The new Jaguar GTP body for 1/10 scale is now available!

For more information, contact McAllister Racing, 454-5H Industrial St., Simi Valley, CA 93063.



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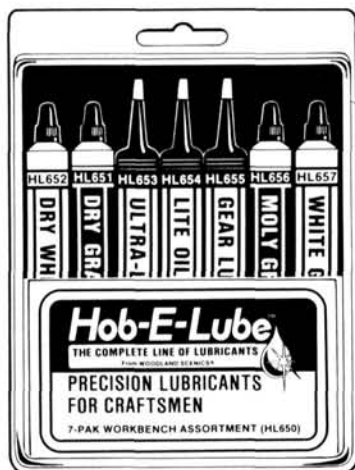


Quick Custom Products' aluminum wheels come in sizes to fit almost any tire. They are lathe turned, made of 6061-T6 aircraft-quality aluminum and true to +/- .0005 inch. Available in three wheel styles, they look like show wheels, but they're tough enough to run off-road.

T6 aluminum shock-spring collars are available for Associated, Kyosho and Option House shocks. They're lightweight and are designed not to slip under heavy use.

The car stands are made of super-tough, lightweight polycarbonate and are custom designed to fit the chassis they're ordered for. They swivel for easy access to the car, are small enough to pack for any race day and take up very little space on your table, but they're still extremely sturdy.

For more information, contact Norm's R/C Hobbies, 234 Farmers' Branch Shopping Center, Dallas, TX 75234.



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One of America's leading producers of model landscaping, Woodland Scenics, announces the introduction of HOB-E-LUBE—a new and complete special-purpose line of lubricants that have been precision-designed for tough, close-tolerance model requirements.

All dry lubricants, greases, and oils have been thoroughly researched for use with R/C cars, planes and boats, and they're plastic and paint compatible. Each of the seven lubes is available individually with its own handy extension-tip applicator for hard-to-reach areas, or in a 7-PAK super-saver take-home workbench assortment, complete with detailed instructions and applications.

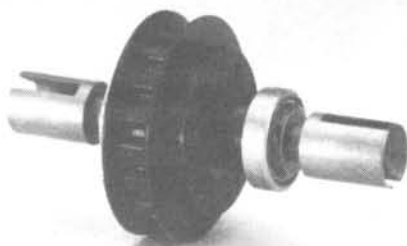
For more information, contact Woodland Scenics, P.O. Box 98, Linn Creek, MO 65052.



GREAT PLANES

Kyosho announces the introduction of three new ball differentials and a one-way differential.

There's a ball differential designed for the race-proven Ultima, one to fit both the front and rear of any belt-driven Optima, and a one-way differential that fits the front of any belt-driven Optima and delivers awesome handling on any surface.

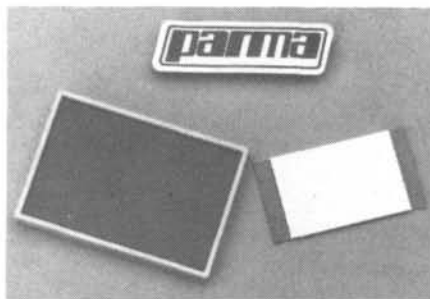


Kyosho Ball Differentials are easy to use and adjust and are perfect replacements for the standard gear differentials, giving the serious racer better handling and durability.



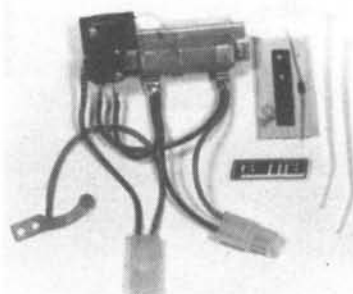
There's a new brand of tire in the R/C marketplace, and it's called DuraTrax, "The Long-Lasting Tire." DuraTrax has 20 different tire styles available for both front and rear wheels, and they come in a variety of sizes to fit most kinds of wheels. All DuraTrax tires are made from 100 percent rubber, so they give excellent traction on a wide variety of surfaces. In addition, all DuraTrax tires are subjected to strict quality-control procedures that keep the wall thickness consistent to within .002 inch, and this ensures even wearing. Whether you're racing or just having fun, there's a DuraTrax tire to meet your needs.

For more information, contact Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.



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For more information, contact Parma International, 13927 Progress Pkwy., North Royalton, OH 44133.



PORSCHE 944 GTP

Master R/C Hobbies has announced the first of their highly detailed polycarbonate bodies, the Porsche 944 GTP. Unlike the original 1981 944 GTP, it's designed around the current 944 Turbo model rather than around the stock Porsche 944. Buyers have a choice of detailing the new Porsche 944 GTP as a standard 1988 944 Turbo or a Le Mans entry Porsche 944 GTP. Master R/C Hobbies has developed a method of thermoforming high-grade polycarbonate while still maintaining the concave curves on the lower body panels. This does away with the flat vertical, front, rear and sides most often seen on after-market Lexan bodies. The Porsche 944 GTP is mounted on a Kyosho Ultima chassis, and it will fit most on- and off-road 1/10-scale vehicles, with few, if any, modifications.

For more information, contact Master R/C Hobbies, 565 Main St., Cherry Valley, MA 01611.

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By popular demand we now have 4"x6" sheets of assorted Car Action Decals for your R/C Car. These high quality pressure sensitive decal sheets come in 5 different colors: Black, Red, White, Gold and Blue. Each Color sheet is \$2.00 and this includes postage & Handling. Send check to:

(Continued on page 119)

TOYOTA RALLY

(Continued from page 112)

*Here are the addresses of the companies mentioned in this article:

MRC/Tamiya, 2500 Woodbridge Ave., Edison, NJ 08817.

Hobby Shack, 18480 Bandilier Circle, Fountain Valley, CA 92728.

W.R. Brown Co., 901 22nd St., N. Chicago, IL 60064. ■

WINTER CHAMPS

(Continued from page 83)

It looks as though most of the manufacturers are ready for the '88 off-road season. With Kyosho, Team Losi and Associated battling for 2WD honors and Yokomo, Schumacher and Kyosho all going for the 4WD-class victories, there should be some great racing this summer.

Appropriately, as the trophies were being awarded, the rain returned to Tampa, to wash out what remained of the U.S. Winter Championships.

*Here are the addresses of the companies mentioned in this article:

Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766.

Yokomo and Revolution: distributed by RPS Distribution, 1655 E. Mission Blvd., Pomona, CA 91766.

Team Pit Stop, 12233 SW 132 Ct., Miami, FL 33186.

Trinity, 1901 E. Linden Ave. #20, Linden, NJ 07036.

Schumacher: distributed by TRC, P.O. Box 478, Oakboro, NC 28129.

Associated Electric Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.

Reedy, 3585 Cadillac Ave., Costa Mesa, CA 92626.

R/C Race Prep, 20115 Nordhoff St., Chatsworth, CA 91311.

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IN KEEPING WITH our constant efforts to help foster the growth of the radio-control car hobby, we've decided to run this track directory intermittently to inform modelers where they can race and exchange ideas. If you'd like your track listed, send us your name, address, phone number and some information about the track to *R/C Car Action Track Directory*, 251 Danbury Road, Wilton, CT 06897.

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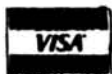
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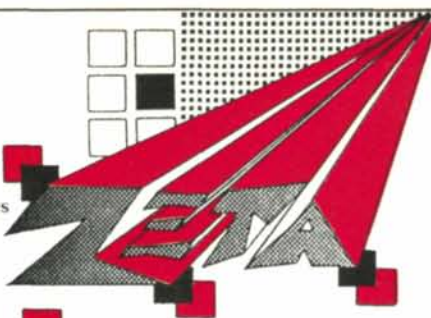


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